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ABSTRACT

Alcohol consumption has risen dramatically in many countries since the Second World War. Accompanying this rise has been a rise in alcohol-related problems, including liver cirrhosis mortality, alcohol dependence, and alcohol-related crimes and accidents. Alcohol misuse presents huge health, social, and legal problems throughout most of Europe and in many Third World countries. This report resulted from the cooperation between the European Regional Office of the World Health Organization and researchers from seven European countries. Its purpose was to discuss a number of practical issues related to the conduct of alcohol research, to indicate certain recent trends in alcohol use and misuse, and to highlight both problems and priorities for research and policy. "The Epidemiology of Alcohol Use and Misuse" (Martin Plant) reviews five general issues that have recently interested researchers and others concerned with alcohol misuse; it does not relate specifically to any particular country. The next six sections present case studies relating to Finland (Esa Osterberg), France (Marie Choquet and Sylvie Ledoux), the Federal Republic of Germany (Irmgard Vogt), The Netherlands (Henk Garretsen), Spain (Javier Ballesteros, Imanol Querejeta, Angeles Rivas, and Fernando Urizar), and the Union of Soviet Socialist Republics (Igor Urakov and Lev Mirosnicenko). Each country section gives a brief survey of patterns of alcohol use and misuse, and focuses on particular subgroups of the population that have been identified as having a high risk in relation to alcohol. Some practical problems facing researchers are identified, and indications are given for futhre priorities for research. (Author/NB)

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EURO Reports and Studies 109

Alcohol-related problems in high-risk groups

Report on a WHO study

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INTRODUCTION

Alcohol consumption has risen dramatically in many countries since the Second World War. In association with this rise there has been a proliferation of alcohol-related problems, including liver cirrhosis mortality, alcohol dependence, alcohol-related crimes and a host of other adverse consequences such as accidents and family strife.

During the past decade alcohol consumption has remained relatively stable in some countries (such as Finland) while in others (France, for example) it has declined. Despite this variation in recent national trends, however, alcohol misuse presents huge health, social and legal problems throughout most of Europe and in many Third World countries in which, until recently, alcohol use was not common. Alcohol is by far the most widely used psychoactive (mind-altering) drug in the world. At a time when international concern about illegal drug use is — rightly — at a high level, it is important to reassert the fact that the adverse consequences of alcohol misuse are far more widespread than those associated with the opiates and other illegal substances. This point was emphasized in the title of a report published in 1986 by the British Royal College of Psychiatrists and called Alcohol: our favourite drug.

Drinking habits vary greatly among countries. Political perceptions of alcohol problems, as well as research traditions and approaches, are also very different. The World Health Organization and the International Council on Alcohol and Addictions, however, have now given the subject a major impetus which it is hoped will foster communication between policy-makers, clinicians and researchers.

This volume is the result of cooperation between the European Regional Office of WHO and researchers from seven European countries. Its purpose is to discuss a number of practical issues related to the conduct of alcohol research, to indicate certain recent trends in alcohol use and misuse, and to highlight both problems and priorities for research and policy.

The first section, on epidemiology, reviews five general issues that have recently interested researchers and others concerned with alcohol use and *misuse; it does not relate specifically to any particular country. The following six sections present "case studies" relating to Finland, France, the Federal Republic of Germany, the Netherlands, Spain and the USSR. These countries were chosen because they represented a varied set of political and cultural contexts against which alcohol problems might be considered. Each country section gives a brief survey of patterns of alcohol use and misuse, and focuses on particular subgroups of the population that have been identified as being vulnerable or having a "high risk" in relation to alcohol. Some of the practical problems facing alcohol researchers are identified, and indications are given of future priorities for research.*

Alcohol misuse is now firmly established as a huge international problem. It is hoped that this review will help emphasize the value of epidemiological studies as a means both of monitoring the scale and pattern of such misuse and of identifying the most fruitful ways of responding to it.

THE EPIDEMIOLOGY OF ALCOHOL USE AND MISUSE

Martin Plant[a]

Epidemiology may be defined as the study of the mass aspects of human diseases. Its nature and scope have been summed up by Barker *(1)*:

> Whereas the basis of clinical research is the observation of individual patients, epidemiology requires observation of communities of people among whom disease occurs. Historically epidemiology arose out of the study of epidemic diseases such as plague, cholera and scurvy; but its scope has now expanded to include all diseases, irrespective of whether their frequency shows epidemic fluctuations.
>
> The purposes for which epidemiological investigations are carried out may be considered under five headings, although a single investigation may in fact serve more than one objective.
>
> 1. Provision of data necessary for planning and evaluating health care.
> 2. Identification of determinants of disease so as to enable prevention.
> 3. Evaluation of methods used to control disease.
> 4. Observation of the natural history of disease.
> 5. Classification of disease.

Edwards *(2)* has commented rather pessimistically on the origins of epidemiology and its use in relation to alcohol:

> The application of epidemiological methods to the study of mental disorder is relatively recent, although certain related matters had attracted attention even

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> in the 19th Century: Durkheim's classic study of the ecology of suicide, for instance, and research on the influence of migration on mental health provide early examples . . . the phrase "epidemiology of mental illness" did not come into general usage until after the Milbank Memorial Conference of 1949 . . . the real burgeoning of psychiatric epidemiology only came when, after World War II, a medical speciality which had up to then been heavily focused on the individual case began to look outward into the community. Growing interest in community care of the mentally ill and the growth of psychiatric epidemiology were, it seems, complementary. One might therefore have expected to see epidemiological study of abnormal drinking caught up in the same movement, and a partnership developed here too between the epidemiologist on the one hand and the planners of services and the clinicians on the other. In the event, society's response to the problems set by abnormal drinking seem up to now largely to constitute an historical example of lack of such partnership.

Ethyl alcohol is the most widely used psychoactive drug in the world. It has been described as humanity's oldest drug and its misuse has caused periodic concern since ancient times. This misuse has now assumed massive proportions in many countries, and is widely associated with a constellation of harmful consequences. Its importance is hardly a matter for doubt. It is therefore rather surprising that Edwards concluded that:

> The failure of planners to realise the possible significance of the epidemiological data which are already at hand, the strange contrast between the general psychiatric services of a country becoming increasingly community-oriented while the specialised alcoholism facilities sadly fail to share in this movement — historically all this may perhaps be accounted for by the rather late discovery of alcoholism as a supposed "disease". It is still often as if alcoholism were plodding along a chapter behind the rest of the story.

Although Edwards' comments were written over a decade ago they retain considerable relevance even today. It is true that there has been a proliferation of epidemiological studies into alcohol use and misuse; nevertheless, this work has been overwhelmingly confined to developed countries and it is doubtful whether the provision of services for problem drinkers or national responses to alcohol misuse have been greatly influenced by epidemiological evidence. The picture is not wholly bleak, however. Epidemiological activity related to alcohol use and misuse has been expanding steadily for two decades and is almost certainly more developed, both qualitatively and quantitatively, than that related to the use and misuse of illegal and prescribed drugs. Even a casual glance at the alcohol epidemiology literature over the past three decades will indicate that there has been an increasing sophistication in methodology and a growing level of concern about methodological issues. There has also been an increase in the attention paid to social and environmental factors related to drinking patterns and alcohol-related problems. These include economic, political, demographic and geographical issues, some of which were scarcely recognized as legitimate objects for research until quite recently.

Despite these tangible advances, in most countries the links between epidemiologists and policy-makers are still very tenuous, if they exist at all. (This problem is by no means confined to the alcohol field, but is evident across a wide range of social policy areas.) As Edwards has hinted, the situation is at least in part attributable to the different ways in which alcohol misuse is perceived. Problem drinkers are sometimes viewed very unsympathetically as feckless individuals, whose misfortunes are either self-induced or simply the result of an incurable constitutional defect. The term "alcoholism" was first used in 1849 by a Swedish doctor called Magnus Huss; the idea that it was some form of disease had earlier been advanced by Thomas Trotter in Scotland in 1785 and by Benjamin Rush in the United States in 1788. The World Health Organization adopted the disease concept of alcoholism in 1952 *(3)*:

> Alcoholics are those excessive drinkers whose dependence on alcohol has attained such a degree that it shows a noticeable mental disturbance or an interference with their bodily and mental health, their inter-personal relations, and their smooth social and economic functioning; or who show the prodromal signs of such developments.

The adoption of this definition certainly helped to obtain a more sympathetic response for alcohol problems and probably increased the perceived legitimacy of WHO's attempts to persuade governments that alcohol misuse was an appropriate target for national action.

In 1977 WHO published an important monograph, *Alcohol-related disabilities (4)*. This sought to integrate the existing disease concept of "alcoholism" with a more general and multifactorial perspective on alcohol misuse. As noted by Shaw *(5)*:

> They concluded that the term "alcoholic" was being used too loosely, and that a new concept was required to refer to the broad pattern of social, psychological and physical harms . . . which clearly the concept of "alcoholism" did not cover.

WHO adopted the term "alcohol-related disabilities" to cover the social, psychological and physical problems associated with excessive or harmful drinking. In 1979 the term "alcoholism" was dropped from the International Classification of Diseases; it has been superseded by the term "the alcohol dependence syndrome", approximating to what in lay language is commonly called addiction. In addition to the fully-fledged manifestations of this condition, or the symptoms of dependence on alcohol, there is a wide spectrum of alcohol-related problems. These extend well beyond the arena of health and many beset people who are not alcohol-dependent or chronic heavy drinkers.

As Thorley has noted *(6)*, many alcohol problems are associated with intoxication. These include an extensive array of medical consequences such as accidents, hangovers, pancreatitis, acute gastritis, amnesic episodes, social problems such as absenteeism from work, aggressive behaviour and domestic strife, and crimes such as drunken driving and homicide. It is emphasized that although some problems, such as crimes of violence, are associated with alcohol misuse, it is frequently evident that alcohol *per se* does not necessarily cause such consequences.

The effects of alcohol, like those of any psychoactive drug, depend upon the chemistry of the substance involved, the characteristics of the user and the environment in which use occurs. In addition to adverse consequences associated with intoxication, there are also those which are associated with chronic heavy drinking. These include physical effects such as sexual impotence, liver cirrhosis, cancers of the mouth, throat and gullet, alcohol dependence, stomach ulcers and Korsakoff's psychosis. Also, many social and legal problems are connected with the long-term misuse of alcohol, including marital, occupational and financial problems.

Many commentators have remarked that there are two distinctly different "worlds" of alcohol problems. The first of these relates to problem drinkers who are in contact with agencies such as special clinics for alcohol-related problems; these people have been extensively described and discussed in clinical studies. The second "world" relates to problem drinkers who are not in touch with such official agencies but whose existence is inferred from community surveys or by other methods. Invariably the latter greatly outnumber the former. Kreitman has half seriously suggested that "the epidemiologist's primary concern with alcoholism is to escape from the field before his reputation is hopelessly tarnished" *(7)*. This view has some justification since the application of epidemiological methods to the alcohol field is indeed fraught with problems. Nevertheless other topics, such as illegal drug use, are in many ways even more difficult to investigate, and epidemiologists have managed to generate a considerable body of information about alcohol use and misuse, some of which has certainly made these phenomena more comprehensible.

The following fairly brief review does not attempt to be a comprehensive survey of the epdiemiology of alcohol-related issues. That would take too much space, and indeed a number of excellent reviews of specific topics within this very broad field already exist *(2, 7–15)*. Instead, it confines itself to five selected topics:

- the role of epidemiology in relation to alcohol;
- the types of information that are available on alcohol use and misuse;

- the relationship between consumption and misuse;
- drinking and pregnancy; and
- alcohol education.

The Role of Epidemiology

Epidemiology serves to provide factual information which, in effect, maps out the overall terrain of both the "normal" and "problematic" use of alcohol. A number of issues have been of particular interest to workers in this field, as already noted by Edwards *(2)* and Kreitman *(7)*. They include the characteristics and careers or prognoses of those who have severe alcohol-related problems, the size of the population at risk of such problems, the etiology of alcohol misuse, and the effectiveness of responses intended to prevent misuse or to assist people with alcohol problems.

The prognosis of identified problem drinkers

Changes in the theoretical concept of alcohol dependence owe much to a body of empirical data related to the fortunes of people with chronic or severe alcohol problems, in particular those exhibiting the fully-fledged alcohol dependence syndrome and in contact with treatment or counselling agencies *(15–20)*. Such studies have indicated that many people who develop serious problems related to the misuse of alcohol (and other psychoactive drugs) manage to overcome them, at least to some extent. It is evident that a person's drinking habits, even if grossly excessive, frequently change and that such changes are subject to a wide variety of social and other influences *(21)*. One of the most controversial conclusions to have been reached from follow-up studies of people dependent on alcohol is that a proportion of them, particularly those who are less heavily dependent, manage to return to what has variously been termed "normal", "moderate" or "controlled" drinking *(22,23)*. This discovery was controverial since it was at variance with the classic disease concept of alcoholism used by Alcoholics Anonymous and other agencies, which suggest that alcohol dependence was an incurable disease. Alcohol dependence, like many aspects of human behaviour, is rather more varied than the classic view would suggest. Even so, the alcohol dependence syndrome does relate to a tangible entity which is empirically and clinically important *(15,24)*.

The conclusion that alcohol problems are frequently surmounted has been reinforced by prospective studies of alcohol and other forms of psychoactive drug use in the general population. These too suggest that drinking habits are frequently subject to change *(25,26)*. One of the most striking conclusions to be derived from epidemiological studies which have followed up the progress of identified problem drinkers is the phenomenon of spontaneous remission. Some individuals not only overcome their alcohol problems, but often appear to do so without professional help.

A similar picture has emerged from studies of problem drinkers in the general population *(21,25)* and there seem to be many reasons for such remissions. As with opiate dependence *(27)* the moderation of alcohol use is frequently explained by social factors. People fall in love, find new interests, new jobs and new lifestyles. It is evident that there are far more people in the community with alcohol problems than ever seek the assistance of helping agencies, partly because, for whatever reasons, many problem drinkers are not inclined to seek such help. It is also evident that many professionals such as doctors, nurses, social workers and psychologists are not interested in detecting alcohol problems or, for other reasons, fail to identify many of the problem drinkers with whom they come in contact *(28)*.

Assessing the population at risk

One of the main concerns of epidemiologists relates to the issue of how many people are at risk of encountering alcohol-related problems. It is reasonable to suppose, as already stated, that only some problem drinkers are identified by official agencies; the rest, for various reasons, do not come to the agencies' attention or may be only incipient problem drinkers. Very often people seek help from agencies only after a major tragedy has befallen them. For example, they may have been involved in an alcohol-related traffic accident, develop liver disease or some other form of ailment, or have problems at home or at work which appear to be connected with their drinking. Many problem drinkers in contact with helping agencies report that they had been seriously misusing alcohol for several years before they were motivated or forced to seek assistance and advice *(20)*.

In 1951, Jellinek suggested that it was possible to assess the number of alcohol-dependent people in the community by a formula involving liver cirrhosis mortality data combined with other factors. Popham noted in 1970 that this formula did produce estimates broadly compatible with those attained by surveys. Edwards *(2)* drew different conclusions:

> A close reading of some of the evidence which Popham puts forward makes it clear, however, that formula and survey estimates have at times widely diverged, and some of the seeming agreement may on occasion owe something to the field worker's deference to the Jellinek estimation, making the survey into something of a self-fulfilling prophecy.

Few researchers would commend the use of such a formula today. The huge epidemiological literature produced on alcohol since 1951 indicates fairly forcefully that the precise connection between alcohol dependence (however defined or identified) and factors such as liver cirrhosis stubbornly refuses to conform to a neat, Newtonian formulation. There is, nevertheless, a connection between alcohol consumption and levels of alcohol-related harm, as described later.

Information about the population at risk of experiencing alcohol problems may be gathered in several different ways (see p. 13). Surveys of the drinking habits of specific groups of people are an increasingly popular method. The first sample survey of this type was conducted by Marconi et al. in 1955 in Santiago *(29)*. Since then there has been a proliferation of such exercises and an increasing sophistication in the methods adopted to elicit full information *(30)*. Surveys provide an invaluable means of obtaining self-reported data, but inevitably their coverage is extremely limited due to the varying research traditions of different countries and to the limited resources available. Most areas are not covered by alcohol surveys and it is usually necessary to rely upon other, already available data with which to assess the general level of alcohol misuse or potential misuse. Many countries have a considerable body of official statistics related to health, social services and crime. The limitations of such indicators are also discussed below.

Surveys are useful for indicating the range of types of drinking behaviour within fairly narrowly defined criteria. Most surveys have been cross-sectional, related to a single period of time. Far fewer have adopted prospective (follow-up) methodologies which enable researchers to monitor changes in drinking habits as they occur *(31,32)*. When available, surveys provide a major source of information about the supposed level of alcohol problems in the community *(10,33–35)*. As Room *(8)* has noted, there has been less development of methods to measure alcohol problems than there has been in relation to alcohol consumption:

> The approach has generally been explicitly eclectic and the measures used have often originally derived from clinical and other sources. To a remarkable degree, the constituent items of measures of drinking problems can be traced back to Jellinek's analysis (1946) of a questionnaire constructed by Alcoholics Anonymous for use among their own members and often the folk wisdom of bar-room lore ("take a drink first thing in the morning" = "the hair of the dog that bit you").

Room points out that surveys have widely indicated that higher levels of reported alcohol consumption are associated with an increased risk of specific and often social disabilities or adverse consequences. There is, as both Room *(8)* and before him Seeley *(36)* pointed out, a certain incongruity in linking a clinical entity, namely alcohol dependence, with social disabilities such as conflict with the police, family arguments or financial problems. Nevertheless, as Room also stated, surveys enable researchers to obtain information about relatively rare events which, because of their infrequency, would be difficult to identify in other ways. This can be done by asking respondents if they have ever or during a specific period (for example the past two years) experienced events such as absenteeism from work, accidents, or arguments. Room suggests that measures of problem drinking used in surveys fall into four categories: measures of drinking *per se*, measures of behaviour while drinking, measures of the psychological loading on the drinking behaviour (i.e. motivations and perceptions of drinking), and measures of the consequences of drinking behaviour.

In many countries those identified as exhibiting the fully developed alcohol dependence syndrome are mainly middle-aged or even elderly. Surveys of drinking problems among the general population in some countries such as the United States and the United Kingdom indicate that they are most common among people in their late teens and early twenties. Moreover, as Room *(8)* has noted:

> ... the overlap between different problems and in different time periods is markedly less than in clinical populations ... there is a wide gulf between reality in the context of the general population and the clinical entity. Measuring behaviour which is equivalent would require sample sizes far beyond any that have yet been contemplated.

The estimates of problem drinkers in communities which have been surveyed routinely far exceed the numbers of individuals who seek help for drinking problems. Moreover the disparity in the ages of problem drinkers in the community and those in clinical settings suggests that there are what Room has termed "two worlds" of alcohol problems:

> Thus young men have a wide margin of social credit concerning the consequences of impulsive and risky behaviours, in the sense that the consequences tend not to be held permanently against them. However, the social norms decree that as time passes the young man should settle down, get a steady job, marry, and abandon or at least modify his rash behaviour. Most men follow this general path in the course of time, and the prevalence of drinking problems accordingly decreases in the late twenties, gradually removing the protection of numbers from those who retain their youthful heedlessness and drinking styles. The labelling of middle-aged problem drinkers and their extrusion from the general milieu and incorporation into the clinical population thus derive not only from the fact that they are now old enough to have a considerable if often sporadic history of problems — which is in itself seen as indicative — but also, from the fact that their behaviour is considered inappropriate to their age group.

The etiology of alcohol use and misuse

Many theories have been advanced to explain the "normal" and "harmful" use of alcohol. Together they present a rather confusing array. It has already been noted that alcohol misuse has been conceptualized in a variety of different ways, including as a disease. Many of the ideas which have been put forward to explain etiology arise from speculation or observation rather than from rigorous research. Some theories of alcohol dependence are based on the characteristics of established dependents; there is less information available about what such people were like before their dependence developed. For these reasons there has been frequent confusion between the causes of alcohol use or misuse and their correlates.

It should be noted that etiological theories related to alcohol are generally much the same as those related to the use and misuse of other psychoactive substances, such as illegal drugs *(37,38)*. They can be subdivided into constitutional, individual and environmental approaches.

To take the constitutional (or biological) theories first, the "disease concept of alcoholism", as popularized by Alcoholics Anonymous, implies that some people are, in effect, "allergic" to the effects of alcohol. This view underplays the fact that anybody may experience alcohol-related harm from drinking alcohol excessively or inappropriately. It has been suggested that depressant drugs (such as alcohol) might appeal to those in need of relaxation, while stimulants (such as amphetamines and cocaine) might appeal to extroverts. Animal research has shown that there are genetic predispositions to using specific drugs. There is also a growing body of evidence that inherited factors may predispose some people to alcohol-related harm. These influences interact with individual and environmental factors. During recent years considerable interest has been aroused by the discovery that the body produces drug-like substances. Some of these are called endorphins (literally "the body's own morphine"). It appears that the receptors excited by endorphins are concentrated in the pathways of the brain concerned with the perception of pain. In consequence it is an intriguing possibility that the development of drug and alcohol dependence by some people, or even the normal use of these drugs, may be explained by the ability of some drugs to alter the perception of experiences such as pleasure and pain. There are certainly some genetic variations in relation to susceptibility to the effects of alcohol. Women are more affected by a given amount of alcohol than are men, as concerns both the development of liver cirrhosis and intoxication. Similarly, some racial groups, such as North American Indians and the Japanese, have also been shown to differ in their physiological responses to alcohol from Europeans, for example.

Family studies lend weight to the belief that there are genetic predispositions to the development of alcohol problems and these have been reviewed by Peck *(39)*:

> Taking a broad view over many studies, 25 per cent of close male relatives of alcohol abusers become abusers themselves, as do 5 per cent to 10 per cent of

female relatives. The expected figures, from the prevalence in the general population, are only 5 per cent and 1 per cent for males and females respectively. There are, however, several ways of interpreting these data. Alcohol abuse may run in families for many reasons other than inheritance; for example, the home environment of a problem drinker may be so stressful as to increase the likelihood of resorting to alcohol, or the children may not have the opportunity to learn the appropriate use of alcohol. Thus, although evidence from family studies is consistent with the notion of a genetic predisposition, such evidence does not favour that notion exclusively, and may just as easily be seen as supportive of environmental determination.

Stronger support for genetic influences comes from follow-up studies of the adopted children of problem drinkers. Goodwin *(40)* concluded that the sons of excessive drinkers were four times as likely to develop alcohol problems as those of non-problem drinkers. Winokur et al. *(41)* noted that, although male close relatives of problem drinkers were particularly likely also to drink excessively, the same did not apply to females. The latter were, however, prone to suffer from depression. This difference may be explained by the fact that in some cultures at least it is less acceptable for females with problems to resort to alcohol than it would be for their male counterparts. Twin studies lend additional support to the view that alcohol misuse may be genetically determined. Kaij *(42)*, in a Swedish study, concluded that identical twins of problem drinkers had a concordance rate of 55%, whereas that among fraternal twins was only 30%. These results, like those of family studies, although suggestive, may also be attributable to environmental influences. Peck *(39)* summarizes in these words:

> Despite these reservations, there is now sufficient evidence from a variety of animal and human work, using different methodologies and from different research centres, to suggest a reasonably strong conclusion that genetic factors do play a part in determining some aspects of alcohol abuse in some people.

Individual theories are largely concerned with either unusual personality traits or more general factors such as extroversion which may account for either the development of alcohol problems or specific patterns of drinking. Much attention has been paid to the possibility that there might be a specific "alcoholic personality". Kessel & Walton *(18)*, for example, noted that: "There is no single alcoholic personality". Even so, they suggested that identified alcohol-dependents frequently exhibited immaturity, self-indulgence, sexual problems, self-punishment and stress. Studies which have compared problem drinkers with control groups of other people indicate that the personality factors of the former are generally unremarkable. As Peck *(39)* concludes: "Certainly, no unique premorbid 'alcoholic' personality has yet been identified".

Many other individual factors have been highlighted which may influence alcohol use and misuse. They include variations in age, sex, hedonism and curiosity. Many of them are plausible. Together they lend weight to the conclusion that alcohol consumption is influenced by many things operating both individually and in combination.

Environmental approaches relate patterns of drinking to cultural, social, historical, political and economic influences. Many studies have noted that identified problem drinkers frequently report family disruption during childhood, together with educational problems and stressful life events. McCord & McCord *(43)* conducted a follow-up of maladjusted boys which indicated that 10% later developed alcohol problems. Other evidence indicates that drinking habits are influenced by the price and availability of alcohol and by national or religious beliefs. The Islamic proscription of alcohol use is clearly an effective deterrent in countries in which this is the dominant religion. In addition there are clear variations in the patterns of both alcohol use and misuse among different ethnic and social groups *(44)*. The relationship between alcohol consumption and alcohol problems is discussed below: it is clear that the two are strongly related and that a key method of curbing the latter is to regulate the former *(45)*. Alcohol misuse has been viewed as a symptom of anomie and alienation, or as arising from a host of both personal and social stress factors. There is clearly a link between alcohol use and misuse and specific occupations: those in the drink and catering trades, service personnel, journalists and sailors belong to a number of occupations which incur high risks of liver cirrhosis mortality and other forms of alcohol-related problem *(46–49)*.

To sum up, many plausible etiological theories have been advanced, each of them consistent with the traits of some drinkers or problem drinkers. Even so it appears that no single theory can account for all types of drinking behaviour. Probably different factors account for different types of alcohol use. Casual "normal" drinking may be explained by social pressures combined with price and availability. Excessive or dependent drinking may be influenced by factors such as social deprivation, stressful life events, genetic predispositions or psychological disturbance. Other factors may explain why some problem drinkers remain alcohol-dependent while others do not.

Evaluating responses

In an ideal world the responses to alcohol misuse would be based on objective assessments of which approaches were demonstrably the most effective. In fact a substantial number, probably the overwhelming majority, of attempts to combat alcohol problems are based on little, if any, such hard evidence — this is true of efforts to prevent the misuse of alcohol, as well as those designed to provide help for problem drinkers. This situation is quite understandable. Resources for responding to alcohol problems are severely limited and have to compete with the requirements of a host of other health and social problems, such as unemployment, illness and poor housing. It has frequently been evident that it is difficult enough to provide a service or to launch some type of initiative; evaluation is often regarded either as an unnecessary burden or as just another expense. Moreover, there is sometimes opposition to evaluation from those whose agencies or ventures are the potential subjects; assessment may be seen as intrusive or threatening.

Yet despite the numerous practical difficulties, it is clearly important to produce information that can serve as a rational basis for choosing between different ways of responding to alcohol problems. Some topics have been the subject of quite extensive activity, such as alcohol education (briefly reviewed below), alcohol control policies and treatment outcomes. A number of excellent general reviews of such issues have been produced *(15,23,50–52)*, providing a useful basis for the design of future approaches to the prevention and management of alcohol problems. Nevertheless, it must be emphasized that some forms of response may not be equally applicable in different settings. Much of the evaluative work has been undertaken in industrialized countries. The needs and resources of developing countries are often very different and may dictate the adoption of rather distinctive approaches.

Even with this important caveat, there is no need for all of the mistakes of the past to be endlessly repeated. The current literature, though in some respects far more limited than one might wish, does provide some useful guidelines for future practice. For example, Orford & Edwards *(53)*, in a now classic paper, reported the results of a comparison of fairly intensive (and expensive) therapy for problem drinkers with a much cheaper, minimal approach, namely "advice". The results of this study, which have been widely discussed, indicated that it may be possible for relatively cheap and simple interventions to be as effective as more elaborate and costly approaches. This issue requires several replications to be clarified; even so, it has important policy implications, especially for developing countries. The latter, having few trained doctors and nurses, might be well advised to develop services for problem drinkers which rely upon what is essentially a "barefoot doctor" approach. Expensive clinics may not be sensible developments if cheaper alternatives are as successful and help more people. In fact many of the alternative ways of helping those with alcohol problems have not been evaluated, either singly or in comparison with alternatives *(54)*.

Another topic which has been subjected periodically to evaluative scrutiny is the use of the law to control some forms of alcohol-related problems. Ross *(52)* has produced an excellent review of legal responses to drunken driving. This indicates that it is not the detailed form of the law, but the perceived likelihood of detection and conviction, which serves to act as a deterrent. Hingson et al. *(55)* have also reviewed the impact of similar legislation and have reached broadly consistent conclusions. Random breath-testing appears to be an especially productive strategy *(56)*.

As Kendell*(57)* has commented, the solution to alcohol misuse, if there is one, is a political rather than a medical issue. Several authoritative researchers have echoed this view*(45,50,51)*. Alcohol misuse in its various guises, as will be discussed below, is inextricably linked with the level of alcohol consumption tolerated in a given country. It is certainly possible to curb certain manifestations of misuse by vigorous action by the police or other agents. Nevertheless, it would appear that the main determinant of the level of alcohol problems is the overall level of alcohol consumption. The latter is vigorously defended in many countries by powerful vested interests, not the least of which is public opinion. As Edwards*(2)* lamented, the alcohol field has not hitherto been a shining example of one in which epidemiology has had a dramatic impact upon the formulation and application of social policy. This suggests that in future epidemiologists need to choose subjects of inquiry that are relevant to policy-makers and need to do far more to open up channels of mutual communication with these very important people.

Types of Information

The patterns of alcohol use and misuse are pieced together from many sources of data, some of which relate to drinking habits, others to indicators of alcohol-related harm. Considerable variation exists in the types of data available in different countries, in their adequacy and in the manner in which they are defined.

Alcohol consumption data

Many countries publish details of the quantities of alcohol officially produced*(58)*. Often, these data have only been produced during recent years and in some cases are incomplete. In some countries, such as Zambia, much of the alcohol consumed is not included in official figures since it is made at home rather than by large-scale commercial producers*(59)*. In Norway a substantial proportion of the alcohol consumed is produced illegally. The scale of such unrecorded production is clearly open to conjecture in many countries, so that the official data give only a partial and misleading picture. Even when they appear to give a reasonably dependable indication of actual alcohol production (as in the United Kingdom), problems remain. The proportion of drinkers in the home population may change over time. In many European countries this proportion has risen during the post-war period, so that per capita alcohol consumption data, though of great value, need to be interpreted accordingly. In addition, tourism is so important in some countries that a considerable proportion of the alcohol consumed is imbibed by overseas visitors rather than by the inhabitants.

During the past two decades there has been a proliferation of self-reported surveys of alcohol consumption among the general population *(60–62)*. These studies provide an important insight into the drinking habits of the respondents; however, they have not been conducted in most countries and are mainly confined to developed nations. Also the overwhelming majority of surveys have related not to the general population, but to specific subgroups such as adolescents *(63,64)* or people in specific towns *(65)*, specific occupations *(25,48)* or other atypical settings, many of them selected because the subjects were previously regarded as being particularly at risk of specific types of alcohol misuse *(66,67)*. The major practical disadvantage of such surveys is possibly the fact that they appear to be seriously prone to underreporting, according to some researchers by as much as 70% *(68–72)*. There is also some evidence that, in some circumstances, respondents to alcohol surveys may sometimes overreport *(32,73)*. These studies are also prone to other forms of bias. There is some evidence that different types of interviewer elicit rather different levels of response *(70,74)*, and many surveys encounter some level of non-response due to either refusals, non-contacts, or both *(75)*.

Despite these limitations, surveys have become increasingly important sources of detailed information about drinking habits. They are a relatively economical means of obtaining large amounts of quantitative data about the patterns of self-reported alcohol use and misuse of individuals whose alleged behaviour would otherwise be purely a matter for conjecture. Few countries have a great body of survey data. Even so, where such material exists (as in Finland and the United States) it provides a unique means of monitoring trends and changes, which can be assessed in relation to other sources of information.

Observation is the classic anthropological method of eliciting information about human behaviour. This has not been used widely but has been of value in relation to drinking habits *(76–78)*. Observation, unlike survey methods, is probably best applied to small groups of subjects and is particularly relevant to the collection of qualitative data. It has, on occasion, also been employed to elicit quantitative information *(79)*.

Data related to alcohol misuse

The level of alcohol-related problems may be gauged with reference to many different indicators. A good number of these probably indicate the level of service provision rather than the scale of alcohol misuse *per se*. Many bodies have some contact with aspects of alcohol misuse, including the health and social services, the police, the law courts, voluntary counselling agencies, educational and industrial organizations and religious agencies. Only some of these bodies routinely collect relevant data or have any special interest in the role of alcohol in the problems with which they are concerned. It is generally not possible to make comparisons between data collected in different countries, due to variations of procedure and definition. It is frequently difficult even to compare data from different areas of the same country or collected by different bodies at the same location. Frequently epidemiologists are forced to patch together a very incomplete tissue of motley information in order to arrive at any general type of assessment of the scope of alcohol misuse in a given setting, be it a village, town, region or country.

In most countries few agencies exist to help problem drinkers. This scarcity is especially severe in developing countries or in areas where alcohol misuse has only recently become a large-scale problem. Nevertheless, some problem drinkers do come to the attention of organizations which keep and publish records. These include psychiatric hospitals and other forms of health or social services. In many countries Alcoholics Anonymous groups keep some (though limited) records of the numbers and traits of their members. Other bodies, such as clinics, counselling agencies or self-help groups, may also keep records. Some agencies maintain elaborate records and are geared to the needs of research, but inevitably they remain a small minority. Information from these various sources is invaluable for producing a profile of the types of people who experience relatively severe alcohol problems, such as alcohol dependence or serious life events linked to excessive or inappropriate drinking.

Some of the evidence of alcohol misuse is direct and unequivocal. For example, if a person attends Alcoholics Anonymous or seeks help from some other source because he or she is a heavy or abusive drinker, alcohol is clearly implicated. However, many forms of alcohol misuse are less readily obvious and need to be inferred indirectly. It is widely believed that excessive drinking is a factor in various forms of crime, such as rape and homicide; yet it is debatable to what extent, if at all, alcohol itself is a cause of such behaviour *(11)*. Similarly many accidents, such as drownings and motor crashes, are alcohol-related.

Research into the real role of drinking in such events is limited and is also overwhelmingly restricted to a few developed countries in which there is a special interest in this subject. In most countries the role played by alcohol in many forms of adverse consequence is not readily apparent. On the basis of available information, however, there is little doubt that alcohol misuse is an important correlate of a wide range of accidents, illnesses and law enforcement problems in many areas *(45,80)*. Considerable scope exists in many parts of the world for future research to illuminate and to monitor the precise nature and extent of alcohol misuse as it becomes evident in the case-loads of the health and social services and other official bodies such as the police. Future understanding would be enhanced if these bodies could be encouraged to collect relevant data for themselves, or if studies could be undertaken to indicate the extent of the involvement of alcohol in specific events. Past experience suggests that it is far easier to identify a connection than to pin down any unequivocal causal relationship with alcohol *(11,81)*.

It has already been noted that surveys provide a useful, if possibly biased, indication of the scale of alcohol misuse among specific target groups. They may give an impression of the potential demand for services to alleviate problems, although this is not necessarily so, since many people who do have problems due to drinking appear unwilling to seek assistance even in communities in which services are available. In many cultures alcohol problems incur at least a degree of stigma, so that many problem drinkers either shy away from declaring themselves or are supported by informal networks of family, friends and community. This informal support is of very great value and is almost certainly the most precious resource that enables problem drinkers to overcome their difficulties.

The limitations of data related to alcohol misuse are many and varied. Considerable scope exists for extending the data available and for enhancing the quality of the information elicited. The main difficulty in this respect is that alcohol misuse, though often important, is frequently not regarded as a high priority. Accordingly, many relevant agencies do not discuss their research objectives with epidemiologists or simply lack the resources to collect satisfactory data. These problems beset alcohol research in all countries to some extent.

Epidemiology, like politics, is "the art of the possible". This is not a perfect world and researchers must use whatever information is available. Each indicator of alcohol misuse is almost certainly flawed. For example, the rate of drunken driving convictions is influenced by the number of law enforcement officers, their priorities and motivations, the number of motor vehicles on the road, weather conditions and drinking patterns *(52)*. Drinking patterns are relevant since intoxication at specific times, such as weekend evenings, is more common in some areas than in others in which less concentrated, more leisurely styles of drinking predominate. The latter are less likely to cause drunkenness, but might be more likely to lead to chronic consequences such as cirrhosis of the liver *(12)*.

Since individual indicators of alcohol misuse are invariably imperfect it is advisable to employ several measures of alcohol-related harm. A recent review examined the impact of Scotland's liquor-licensing changes, introduced in 1976, in relation to alcohol-related deaths, hospital admissions and drunkenness offences *(82)*. Such an approach is possible only if several different types of data are available. This is the case in many countries and several reviews have used such a range of information to describe the situation in single localities or to compare alcohol misuse in different settings *(12,65,83)*.

Consumption and Harm

One of the most basic questions to have been addressed by epidemiologists relates to the connection between normal patterns of alcohol consumption and rates of alcohol-related problems. It is a truism to state that without alcohol there would be no alcohol misuse. Nevertheless, considerable attention has been devoted during the past three decades to an examination of the role played by alcohol in the etiology of specific forms of alcohol-related problem. This attention is perhaps less surprising than it might appear. The predominance of the disease concept of alcoholism led to much activity being focused on a search for individual predisposing factors, such as an "alcoholic personality". This activity was and remains perfectly legitimate; even so, it did not lend itself to the exploration of other social and cultural influences which may coincide or interact with individual traits. In 1956 a French demographer, Ledermann, contended that the general level of alcohol consumption in a society determined the level of alcohol dependence *(84)*. He maintained that the link between such harm and alcohol consumption was so clear that it could be expressed by a mathematical formula. The apparent simplicity of this view made it initially appear attractive but it has subsequently been criticized on the grounds that it is in fact grossly oversimple and therefore undependable *(85)*. The "Ledermann Theory", as it has been called, is discredited in its original precise formulation; even so, Ledermann deserves praise for having reasserted the importance of social and economic influences upon alcohol misuse.

There is a relationship between the per capita level of alcohol consumption in a society and the level of alcohol misuse, but this relationship is far more complicated than originally suggested by Ledermann. Social groups differ very greatly in their patterns of alcohol consumption and in the precise patterns of alcohol misuse recorded by official bodies such as the health and social services or by law enforcement bodies. In spite of the perplexing variations in both normal and harmful drinking in different settings, it appears that if alcohol consumption increases so, usually, does alcohol misuse. Conversely, when alcohol consumption declines so too does the level of alcohol-related harm. This view is supported by an abundance of data. In many countries per capita alcohol consumption has increased considerably since the Second World War. This rise has been accompanied by a proliferation of alcohol-related problems such as alcohol dependence, drunkenness offences and deaths from cirrhosis of the liver. In general, the fluctuations of alcohol consumption are paralleled, albeit roughly, by fluctuations in the rates of specific problems.

It is difficult to make many international comparisons. Different countries operate widely varying systems of law enforcement and service provision in relation to alcohol problems. Many official statistics are measures of service provision rather than being precise indications of the level of harm. Two variables, however, are recorded fairly widely and do permit comparison to be made between different countries. These are the per capita levels of alcohol consumption and rates of liver cirrhosis mortality. The latter are relevant because evidence suggests that a high proportion of such deaths are attributable to prolonged excessive drinking *(86)*. Table 1 presents details of changes in the levels of per capita alcohol consumption in 28 countries between 1960 and 1983. As the table indicates, only in two of these countries, France and Italy, was the level of alcohol consumption lower in 1983 than it had been in 1960. In the rest, consumption had risen by between 22.2% (Portugal) and 234.6% (Netherlands). It must be noted that between 1973 and 1983 a wide variation in national trends in per capita alcohol consumption has been evident. In some countries the level has been fairly stable; elsewhere it has either risen or declined *(49)*.

Excessive or inappropriate drinking may be associated with a wide range of adverse consequences. For the purposes of the following section these are divided into "health" and "other" problems. This division is grossly oversimplified since a fight, for example, may cause injury (a health problem) and constitute a crime (a non-health problem).

Health problems

The general relationship that exists between per capita alcohol consumption and rates of liver cirrhosis mortality is indicated by comparing the data in Table 1 with those in Table 2. Table 2 shows rates of either liver cirrhosis or liver cirrhosis and chronic liver disease in 26 countries. It indicates that countries in which per capita alcohol consumption is high (such as France and Italy) also have very high rates of liver disease. Countries with much lower levels of per capita alcohol consumption (such as Finland and Norway) have far lower rates of liver disease. Even so the concomitance of alcohol consumption and cirrhosis, though obvious, does not follow a completely uniform pattern. This is because, as already noted, both alcohol consumption and liver disease interact with and are influenced by many factors, both biological and environmental.

Patterns of alcohol use and misuse vary considerably within individual countries. The USSR, for example, contains a considerable Moslem population to whom alcohol is anathema. Approximately a third of the adults in Ireland are total abstainers. Accordingly, generalizations about national drinking patterns need to be made with caution. Recent surveys indicate that levels of alcohol consumption in Scotland are very similar to those in England & Wales, yet levels of officially recorded alcohol problems appear to be markedly higher in Scotland. For example, as shown in Table 2, Scottish women have a higher rate of mortality from cirrhosis of the liver than do men in England & Wales *(82)*. Recent research suggests that this anomaly is largely an artefact of regional differences in recording practices.[a] Two recent studies examined community drinking habits and officially recorded rates of alcohol dependence in three areas of Britain; together they indicated that in reality an apparently twelve-fold disparity in alcohol dependence rates recorded by psychiatric hospitals was largely due simply to variations in hospital policy *(88)*.

Davies *(89)* has noted that national estimates of the numbers of people who are alcohol-dependent are based on "imprecise and variable criteria". He cites a number of European estimates to illustrate the range in both rates and definitive criteria; these are summarized in Table 3.

A similar review was conducted by Moser *(83)*. She noted that in some countries, such as Argentina, France and the Federal Republic of Germany, studies have indicated that over one fifth of those admitted to psychiatric hospitals had a diagnosis of alcoholism or alcoholic psychosis. Such admissions clearly constitute a major part of the demands for psychiatric services in many countries and these demands have escalated sharply in association with the post-war upsurge in alcohol consumption.

Other problems

It is paradoxical that national concern about the social aspects of alcohol misuse is almost inversely related to levels of per capita alcohol consumption. Drinking is certainly more widely accepted or "integrated" in some cultures than it is in others. For example the British, Irish and Scandinavians appear to exhibit a degree of interest in their own alcohol misuse which is quite disproportionate in relation to their (relatively) low national levels of per capita alcohol consumption. Much of this concern probably reflects long-standing attitudes to alcohol. These countries are all far more ambivalent towards drinking than are the viticultural countries of southern Europe in which alcohol consumption is both much higher and far more widely accepted as an adjunct to meals. The level of interest in alcohol problems in any single country is heavily influenced by traditional attitudes and also by the pattern of alcohol misuse. In Scandinavian countries there is, as in Britain and North America, a considerable toll of problems which are attributable not specifically to chronic heavy drinking (though these too are evident) but to intoxication, particularly at weekends. Non-health problems, as noted by Thorley *(6)* include the stigma attached to alcohol misuse and legal problems (e.g. public drunkenness, drunken driving, homicide, assault, theft and vandalism). In addition, a wide range of social problems are associated with alcohol misuse. These

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[a] Kemp, I., personal communication.

Table 1. Levels of per capita alcohol consumption, in litres of pure alcohol, in 28 countries, 1960 and 1983

Country	Year		Percentage change 1960-1983
	1960	1983	
Australia	6.6	10.0	+ 51.5
Austria	8.3	11.3	+ 36.1
Belgium	6.2	10.6	+ 71.0
Bulgaria	4.5	8.8	+ 95.5
Canada	4.8	8.5	+ 77.1
Czechoslovakia	7.0	11.7	+ 67.1
Denmark	4.2	10.7	+ 154.8
Finland	2.4	6.5	+ 171.1
France	19.0	14.8	— 28.3
German Democratic Republic	5.8	14.2	+ 144.8
Germany, Federal Republic of	7.5	12.3	+ 64.0
Greece[a]	5.2	6.8	+ 30.8
Hungary	6.4	12.3	+ 92.2
Ireland	3.8	6.1	+ 60.5
Italy	12.5	12.4	— 1.0
Japan	3.4	5.9	+ 73.5
Netherlands	2.6	8.7	+ 234.6
Norway	2.6	3.8	+ 46.2
Poland	4.1	6.5	+ 58.5
Portugal	10.8	13.2	+ 22.2
Romania	4.1	7.9	+ 92.7
Spain	8.9	12.5	+ 40.4
Sweden	4.0	5.4	+ 35.0
Switzerland	8.5	10.9	+ 28.2
Union of Soviet Socialist Republics	3.9	6.1	+ 56.4
United Kingdom	4.2	6.9	+ 64.2
United States of America	5.2	8.2	+ 57.7
Yugoslavia	4.7	8.2	+ 74.5

[a] Excluding spirits

Source Thurman, C., personal communication, adapted from Brown et al *(58)*.

Table 2. Rates per 100 000 total population of chronic liver disease and cirrhosis mortality in 26 countries

Country	Year	Males	Females
Australia	1983	10.7	4.4
Austria	1983	43.8	18.0
Belgium	1979	16.8	10.2
Bulgaria	1983	20.4	7.6
Canada	1982	13.2	6.4
Czechoslovakia	1983	29.8	11.2
Denmark	1981	6.9	2.2
Finland[a]	1983	9.7	4.5
France	1981	39.5	16.2
Germany, Federal Republic of	1984	32.2	15.9
Greece	1982	16.4	6.7
Hungary	1982	45.1	20.2
Ireland	1981	3.5	2.9
Italy	1980	49.1	20.1
Japan	1984	20.5	8.1
Netherlands	1983	6.7	3.9
Norway[a]	1983	7.6	4.1
Poland	1984	14.7	8.1
Portugal	1982	44.6	16.6
Romania	1983	40.1	24.8
Sweden[a]	1981	14.1	7.0
Switzerland[a]	1983	18.6	6.5
United Kingdom			
England & Wales	1982	4.7	4.0
Scotland	1984	9.2	7.3
United States of America	1982	15.9	8.2
Yugoslavia	1982	31.8	11.6

[a] Rates refer only to cirrhosis of the liver.

Source: World Health Organization *(87)*.

Table 3. Estimates of the number of people who are alcohol-dependent[a] or who have alcohol-related problems[a] in selected countries of Europe

Country or area	Absolute number	Rate per 1 000 population	Definition
Austria	500 000	66.5	Persons with alcohol-related conditions or at risk
Luxembourg	15 000	41.2	Persons regularly drinking to excess
Poland	900 000	26.2	Alcohol-dependents
Sweden	300 000	36.5	Alcohol abusers
Switzerland	115 000	18.3	Persons with alcohol-related problems
United Kingdom			
Royal College of Psychiatrists	300 000	7.1	Persons with drinking problems sufficient to warrant the label of "alcoholism"
England & Wales			
Office of Population Censuses and Surveys (1977)	740 000	15.0	Alcoholics, based on GP consultations
Office of Health Economics (1981)	700 000	14.2	Problem drinkers
	150 000	3.0	Alcohol-dependents
Department of Health and Social Security (1976)	500 000	10.2	Persons with a serious drinking problem
Scotland			
Clayson (1973)	75 000	14.4	Persons regularly drinking to excess
	25 000	4.8	Addicts (i.e. alcoholics)

[a] Variably defined.

Source: Davies *(89)*.

include accidents (which may also be health problems), child abuse and neglect, sexual and marital problems, absenteeism, work inefficiency, social isolation, aggression and financial problems.

Many specific topics have recently been of particular interest to epidemiologists in the alcohol field. These include women and alcohol, adolescents and alcohol, polydrug use and a wide range of alternative treatment approaches for problem drinkers. To illustrate the type of evidence that has been generated, particularly during the past two decades, there follow two brief sections on drinking during pregnancy and alcohol education.

Drinking during Pregnancy

Concern that maternal drinking during pregnancy might cause fetal harm has been voiced periodically for centuries. The post-war upsurge of alcohol use and misuse revived this fear, together with a wave of more general interest in alcohol problems among women. In 1973 Jones & Smith *(90)* coined the phrase "the fetal alcohol syndrome". This purportedly consisted of a constellation of abnormalities evident in a small group of children whose mothers were heavy drinkers. Although Jones & Smith were by no means the first authors to suggest a link *(91)*, their work was highly influential and gave impetus to a veritable flood of new publications related to this topic *(92,93)*. In 1981 the United States Surgeon General *(94)* issued a forthright statement on the subject:

> Even if she does not bear a child with full FAS, a woman who drinks heavily is more likely to bear a child with one or more of the birth defects included in the syndrome. Microcephaly, which is associated with mental impairment, is one of the more common of these defects. Each patient should be told about the risk of alcohol consumption during pregnancy and advised not to drink alcoholic beverages and to be aware of the alcoholic content of food and drugs.

Several hundred publications have now been generated which relate to this subject. These produce a clear consensus that there is perceived to be a link between heavy maternal drinking during pregnancy and birth abnormalities. Very few studies have attempted to disentangle the possible role of alcohol in this regard from the role of other factors such as other forms of drug use, diet, maternal age, social position and previous obstetric history. Even fewer have combined this with a prospective (follow-up) methodology involving the collection of information from mothers during, rather than only after, pregnancy. Available evidence does not suggest that moderate alcohol consumption causes fetal harm. In fact most pregnant women appear to either abstain or to drink only small amounts during pregnancy. Heavy drinking, on the other hand, is associated with various forms of birth defect. It is also associated with a variety of other factors. These include those noted above and together present a rather confusing picture. Heavy drinkers are often also heavy users of other psychoactive drugs, both legal and illegal. Alcohol consumption appears to be only one of many factors which influence the outcome of pregnancy in humans. In fact its importance appears to have been greatly over-emphasized, if not sensationalized. Current information suggests that heavy drinking may have a harmful effect on the fetus, and should accordingly be avoided, together with other forms of psychoactive drug use such as smoking, the use of tranquillizers and the use of illegal drugs. It is emphasized that moderate alcohol consumption, for example one or two drinks consumed once or twice a week, does not appear to justify concern about harm to fetal development *(81,95)*.

Alcohol Education: a Promise Unfulfilled

Perhaps the ideal solution to alcohol problems would be the use of education to produce future generations who drink only in moderation because they are aware of the potential risks of excessive or inappropriate imbibing. Education is one of the least controversial approaches to the prevention of alcohol misuse. It is a popular option, possibly because it is not over-authoritarian and because it does not directly attack any particular vested interest. In fact education about alcohol is not confined to what is provided by schools or health education campaigns. People appear to form impressions about drinking at a very early age, usually in the home or by observing the drinking habits of adults *(63,96)*. In 1975 an important article was published by Kalb *(97)* under the pessimistic title of *The myth of alcoholism prevention*. This advanced the following contention:

> To talk about prevention belongs in the same category as "Mom and Apple Pie" — everybody is unquestioningly for it, and no one dares to speak out against it. This "sacred cow" philosophy has established a climate in the alcohol field whereby lip-service is paid to the importance of prevention programmes but such programmes are not openly and extensively discussed and criticised nor evaluated for their effectiveness.

Kalb concluded that there was virtually no dependable evidence to support the view that alcohol education had achieved tangible results. Kinder et al. *(98)* noted that alcohol and drug education programmes had been:

> . . . ineffective in obtaining the goals of reducing substance abuse or preventing future abuse. Amongst student populations there is evidence to suggest that these programmes may exacerbate the use and sale of drugs or alcohol.

These reviewers noted that the majority of over 100 papers on this topic contained very little evidence by which to judge the effectiveness of alcohol and drug education. A contrasting and much more optimistic note has been sounded by Smart *(99)*:

> Alcohol education, after an undistinguished temperance past, shows signs of being an important part of preventive programmes. Several recent experimental studies have shown beneficial effects over short periods of time. Alcohol education should be expanded to cover more children and long-term studies of its effectiveness should be planned.
>
> Mass media and mass persuasion alcohol programmes are mostly disappointing in their outcomes. Those that are the most effective are associated with some increased enforcement of a new law. Such programmes should be expanded for young people.

Alcohol education has a worthwhile role to play, but it is important that this role should be viewed realistically. Education is not a panacea for alcohol misuse. The etiology of misuse, as noted above, is complex and possibly relates only to a small extent to lack of knowledge about alcohol. In the past, educational initiatives have often not been devised with clear objectives and many have not been properly and objectively evaluated in relation to their possible impact upon attitudes, knowledge or behaviour. Claims of effectiveness are quite unjustified in the absence of such evidence.

It is important that available knowledge about alcohol should be disseminated to the general population and, in particular, to sections of the population which are especially at risk in relation to specific types of alcohol-related problem. It is possible to inform people of the range of services available to help problem drinkers *(100)*. In addition, education and behavioural approaches appear fruitful as methods of assisting problem drinkers to moderate their alcohol consumption *(23,101)*.

Conclusions

Alcohol is now firmly established as the world's most popular recreational drug. As a result, misuse has not only become widespread in areas where it has long been a subject of concern, but has also emerged as an increasingly serious health and social problem in areas where drinking as a generalized or common phenomenon is relatively new. As indicated by this review, epidemiological studies have expanded greatly during recent years. However, most countries have little tradition of epidemiological research into the social, psychological and economic aspects of alcohol use and misuse. Most public and private responses to alcohol problems are formulated for reasons other than the evidence of the effectiveness of past attempts to respond to this now major problem.

Available information, for all its limitations, does frequently provide a basis for policy formulation. Future work in this field should become increasingly concerned with evaluating and comparing options for public response. Epidemiology has a key role to perform in this context. It should seek to increase the supply of factual information about the changing patterns of alcohol use and misuse and ways to limit such misuse. In some countries alcohol problems should not be considered in complete isolation from other issues such as the use and misuse of tobacco and prescribed or illegal drugs. Alcohol is sometimes best viewed as just one type of psychoactive drug. It is different from other drugs in some respects but also bears many similarities to them. So far, as already lamented, research findings in this field have had little effect on the formulation of policy.

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FINLAND

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Epidemiological studies of the use and misuse of alcohol are well developed in Finland, and there has been considerable activity in the last few years. Some of the work done — notably three national surveys carried out between 1968 and 1984 — is reviewed here in an attempt to sum up recent patterns and trends in alcohol use and misuse and to highlight those groups that seem to run an especially high risk of encountering alcohol-related problems.

The Consumption of Alcoholic Beverages

The laws of Finland define as alcoholic beverages all drinks manufactured for human consumption and containing more than 2.25% ethyl alcohol by weight. Finland has a state-controlled alcohol monopoly; its consumption records are based on detailed information about sales and deliveries of alcoholic beverages *(1)*.

Immediately after the Second World War, Finland's aggregate consumption of alcohol stood at about 1.7 litres of 100% alcohol per capita (see Fig. 1). Today, it amounts to some 6.5 litres, which is to say that during the last 40 years Finland's alcohol consumption, as measured by sales from off-licence retail outlets and restaurants, has almost quadrupled.

In the late 1940s and throughout the 1950s, consumption was relatively stable. It began to rise in the late 1950s and early 1960s, the increase becoming especially marked towards the end of the 1960s and in the

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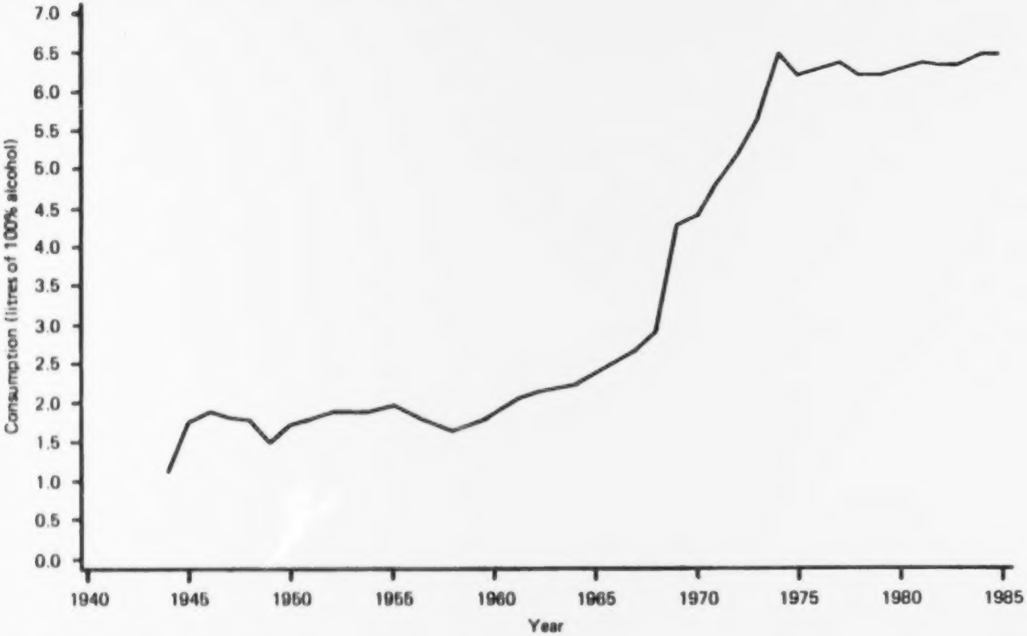
Fig. 1. Recorded per capita consumption of alcoholic beverages in litres of 100% alcohol, 1944-1985



Source Alko *Yearbooks* (1944-1985) *(2)* early 1970s. Since then the overall level has not changed much, the annual per capita consumption figure remaining steady at just under 6.5 litres of pure alcohol.

Spirits were by far the most popular drink in Finland in the late 1940s, accounting for some 80% of all the alcohol consumed nationally (Table 1). By 1985, however, spirits accounted for less than 50% of national consumption. Over the post-war period, the proportion of overall consumption accounted for by beer has risen from less than 20% to more than 40%. The proportion accounted for by wine has risen very little, if at all, despite the fact that Finland's alcohol policy has intentionally favoured wine-drinking. Mild wines, however, have steadily become more popular than fortified ones.

Table 1. Consumption of alcoholic beverages by class of beverage, 1950-1985

Year	Consumption (per cent)		
	Distilled spirits	Wines	Beer
1950	80.3	4.8	14.9
1960	71.0	10.2	18.8
1970	41.9	12.1	46.0
1975	48.7	12.4	38.9
1980	47.2	11.7	41.1
1985	46.7	10.0	43.3

Source Alko *Yearbooks* (1950-1985) *(2)*

Roughly one fifth of all the drinks sold in Finland are consumed on licensed premises; the figure has hardly fluctuated at all since the Second World War.

Finnish alcohol sales records are accurate and reliable. Even so, they do not cover all the alcohol that Finnish people consume, nor do they cover all the alcohol drunk in the country. Surveys indicate that approximately 1 in 20 of the drinking occasions in which Finns participated during 1984 took place abroad *(3)*. It is also estimated that foreigners buy almost 5% of all alcoholic beverages purchased in Finland.

There are three main categories of consumption which lie outside the scope of Finland's official records. First, there is the alcohol which people make at home — licitly or illicitly. Second, there are legally and illegally imported alcoholic beverages. And third, there is the consumption of alcohol not manufactured as a beverage. Mäkelä has estimated that unrecorded consumption was equivalent to between 20% and 40% of the recorded aggregate in the 1950s, about 10% in the late 1960s, and in the region of 8% in 1976 *(4)*. The 1984 estimate for unrecorded consumption was equivalent to some 12% of the recorded total *(3)*. Duty-free alcohol was by far the most important unrecorded item and accounted for roughly 60% of overall unrecorded consumption in Finland.

The marked rise in alcohol consumption in Finland and the modifications which have occurred in the beverage class structure indicate that Finnish drinking habits have changed. Despite these structural trends, however, the country's overall consumption of spirits has also risen (Table 2), and this should be borne in mind when drinking habits are analysed. Old drinking habits have not been replaced by new ones. Instead, new drinking habits have appeared beside the old.

Table 2. Per capita consumption of alcoholic beverages by class of beverage, in litres of 100% alcohol, 1950-1985

Year	Per capita consumption (litres of 100% alcohol)			
	Distilled spirits	Wines	Beer	Total
1950	1.4	0.1	0.3	1.8
1960	1.3	0.2	0.4	1.9
1970	1.8	0.5	2.0	4.3
1975	3.0	0.8	2.4	6.2
1980	3.0	0.7	2.6	6.3
1985	3.0	0.7	2.8	6.5

Source: Alko *Yearbooks* (1950-1985) *(2)*.

Changes in Drinking Habits

Nationwide interview surveys were conducted in Finland in 1968, 1976 and 1984. Unfortunately, there is no comparable information for earlier years. The data available are nevertheless exceptionally useful since they permit analysis of how drinking habits changed during periods when the consumption of alcohol in Finland either increased or remained stable (Fig. 1).

Table 3, giving the distribution of the drinking frequencies reported by respondents, shows that men drink far more often than women. In 1984, for instance, one man in two was in the habit of drinking at least once a week, while no more than one in five women did so. Some 10% of the men interviewed were in the habit of drinking every day; the corresponding figure for women was 2%. People who had drunk no alcohol at all during the 12 months preceding the interview were defined as abstainers: just over one man in ten reported abstinence, while the corresponding figure for women was almost three times greater.

Table 3. Classification of respondents according to frequency of drinking, 1968, 1976 and 1984

Frequency of drinking	Year					
	1968		1976		1984	
	Men (%)	Women (%)	Men (%)	Women (%)	Men (%)	Women (%)
At least once a week	35	9	49	23	50	22
At least once a month but less than once a week	38	26	32	37	30	36
At least once a year but less than once a month	15	21	10	20	8	15
Abstainers	13	43	9	20	12	27

Source: Simpura *(5)*.

Drinking frequencies rose between 1968 and 1976 but remained virtually stable between 1976 and 1984. Abstinence became slightly more common, while fewer respondents reported drinking very infrequently. Interestingly, the abrupt rise in alcohol consumption which took place in 1969 was apparently the outcome of increased drinking frequencies and a fall in the prevalence of abstinence. The growth which occurred in the early 1970s seems to have been due to two main factors: the quantities people drank at one sitting grew, and the prevalence of abstinence declined. The amounts consumed at single sittings also increased between 1976 and 1984. The number of drinkers, however, fell slightly *(6)*.

Adult men appear to be the most frequent drinkers. Some 58% of men aged 30–49 years drank at least once a week, while 54% of those aged 20–29 did so. The corresponding figures for the 50–69 and 15–19 year age groups were 71% and 29% respectively. One in every three women aged 20–29 drank at least once a week. Men aged 20–49 consume roughly twice as much alcohol a year as their counterparts aged 50–69 and 15–19 years. Among Finnish women, the 20–49 year age group have the highest consumption, but they nevertheless drink 3–4 times less than men of the same age *(5)*.

The distribution of alcohol consumption is skewed, in the sense that the intake of most drinkers is moderate, while a small minority drink very heavily. The 10% of men who drink most, for instance, drank half of the total alcohol consumed by all men, whereas the 5% who drink most drank about one third of the total for all men. The corresponding figures for women were somewhat higher. These surveys defined "heavy drinkers" as persons whose annual intake exceeded 10 litres of pure alcohol. People may forget or conceal how much they actually drink; heavy drinkers probably consume between 30 and 40 litres of 100% alcohol a year each. Only 1 in 10 heavy drinkers are women and almost half of them are aged 20–29. More than half of the heavy drinkers are men aged 30–49.

Finnish drinking habits are often said to revolve around a deliberate attempt to become drunk. In 1984 roughly two thirds of all the alcohol consumed by men was drunk on occasions when the drinkers' blood alcohol concentrations rose to above one part per thousand. The corresponding figure for women was about one third of all the alcohol consumed. These figures have not changed very much since 1968 *(7)*.

To complete this description of Finnish drinking habits, it is worth pointing out that no more than 1% of men are in the habit of drinking beer or wine with meals on weekdays, and that the percentage of women who do so is negligible. Some 2% of Finnish women drink wine or beer with their meals at weekends or on national holidays; the corresponding figure for men is 4%. The Finnish public continues to use alcohol as a medicine, although the practice is becoming less widespread. Approximately 20% of women and 30% of men reported that they had used alcohol in this way during 1984.

Most drinking in Finland occurs at weekends. Friday and Saturday evenings account for more than half of both men's and women's overall weekly consumption. Furthermore, most Finns prefer to drink at home. Roughly two thirds of drinking occasions occur in private homes, while one in four occurs on public licensed premises *(7)*.

Alcohol-related Problems

There are two main approaches to analysing the the prevalence of alcohol problems. The first is to use official statistics, and the second is to ask the public about their experiences and attitudes.

The people interviewed in 1968, 1976 and 1984 were asked what problems related to alcohol they had had in the preceding 12 months and during their lives as a whole. The responses indicated that roughly 15% of Finnish men had been arrested for drunkenness at some time in their lives. Similarly, 15% had been absent from work or experienced temporary financial difficulties because of drinking. The corresponding figures for women were in the region of 2%. The problems were most widespread among men aged 20–49 *(8)*.

Quarrelling and arguing apart, far more men than women had had alcohol-related problems during the 12 months preceding the interview. A quarter of both men and women aged 15–29 reported that they had become involved in a quarrel or argument while drinking. Just under 10% of men aged 15–49 reported that they had driven a car while under the influence of alcohol. Some 15% of young men aged 15–19 had been involved in a scuffle or fight, about 18% had damaged their clothing or property, and 10% had lost money or valuables. The corresponding figures for women aged 15–19 were lower; nevertheless, young girls were more likely to experience these problems than were older men *(8)*.

The older adults become, the less likely they are to experience alcohol-related problems. On the other hand, problems become more likely as consumption increases. The 1984 national survey clearly indicated that men's problems became more prevalent the more they drank. One in every five heavy drinkers reported that they had driven a car while under the influence of alcohol during the preceding 12 months. Nevertheless, the incidence of problems experienced in the 12 months prior to the interview clearly fell between 1976 and 1984, in both absolute terms and relative to consumption levels. Conversely, the incidence of all categories of problem grew markedly when consumption increased in the early 1970s.

One can never be sure that survey respondents tell the truth. The problem with official statistics, on the other hand, is that it is difficult to discuss the objective consequences of drinking, and cultural perceptions and social reactions to drinking problems, as separate issues. Yet if one analyses the various sources of error carefully, using several complementary statistical series simultaneously, one can make generalizations about the realities underlying the statistics.

The dramatic increase in Finland's aggregate alcohol consumption which occurred in the late 1960s and early 1970s was accompanied by a substantial increase in the adverse consequences of drinking. Between 1950 and 1975, arrests for drunkenness increased by 60%, and crimes of violence by about 85%. While the number of cases of drunken driving known to the police was about 2000 in 1951, the 1975 figure stood at 18 000. The number of road traffic accidents involving alcohol increased threefold during the same period. Mortality from cirrhosis of the liver and alcoholic psychosis trebled between 1951 and 1975, as did deaths due to alcohol poisoning and alcohol dependence. The hospital admission rate for pancreatitis in men increased by a factor of 1.7 between 1969 and 1975, and that for alcoholic psychosis by a factor of 2.1. Admissions for cirrhosis of the liver rose very slightly but the admission rate for alcohol poisoning remained static. The growth in the alcohol-related hospital admission rate cannot, it seems, be explained in terms of the number of hospital beds available, admission policies or diagnostic practices *(9)*.

As noted above, the different categories of adverse consequences of drinking increased at varying rates between 1950 and 1975. The consequences to health of prolonged drinking, such as cirrhosis of the liver, showed a steeper increase than social conflicts related to single drinking occasions, such as arrests for drunkenness and violent crime. These trends are all the more significant in view of the fact that deaths due to cirrhosis of the liver not induced by alcohol remained fairly stable. It is not surprising that the incidence of drunken driving rose markedly, since the number of motor vehicles increased more than tenfold between 1950 and 1975. Traffic safety in general improved. Alcohol-related accidents did not increase so much as drunken driving, but they did come to account for a far larger share of all traffic accidents.

The statistics show that there has not been much increase in alcohol problems since 1975. Drunken driving and crimes of violence increased slightly, but the incidence of arrests for drunkenness and alcohol-related traffic accidents fell slightly. Alcohol is currently involved in some 7% of all the accidents on Finnish roads and plays a part in about 20% of all road traffic fatalities. The total number of intoxicant misusers taken into care has remained stable, while the overall incidence of juvenile misuse has declined. As for alcohol-related mortality, the numbers of deaths due to cirrhosis of the liver and alcoholic psychosis have not changed much. Mortality due to alcohol dependence and alcohol poisoning has increased slightly, while the incidence of deaths due to pancreatitis has fallen. There has been a slight decline in hospital admissions occasioned by alcohol poisoning and pancreatitis, while admissions due to cirrhosis of the liver and alcoholic psychosis have remained stable. As can be seen from Table 4, alcohol problems are far less prevalent among women than among men. Indeed, the incidence of most problems among women is markedly lower than the proportion of consumption accounted for by them.

Table 4. Detrimental effects of the use of alcohol in 1984

Alcohol-related problem	Rate per 100 000 inhabitants	Women's share (%)
Taken into custody because of drunkenness	4 306.0	6.4
Drunken driving	439.0	3.9
Road traffic accidents	709.0	
Road traffic accidents involving alcohol	58.0	
Deaths in traffic accidents	11.1	
Deaths in traffic accidents involving alcohol	2.1	
Murder and manslaughter	2.3	9.0
Murder and manslaughter under the influence of alcohol	1.5	
Assault and battery	338.0	6.2
Assault and battery under the influence of alcohol	217.0	
Deaths from alcoholism	3.0	8.8
Deaths from alcoholic psychosis	0.2	11.1
Deaths from alcohol poisoning	5.6	11.3
Deaths from cirrhosis of the liver	6.5	36.1
Deaths from diseases of the pancreas	1.8	39.5
Drowning	2.5	9.8
Treatment for alcoholism	198.0	12.1
Treatment for alcohol psychosis	36.7	14.0
Treatment for alcohol poisoning	13.9	25.6
Treatment for cirrhosis of the liver	23.7	42.7
Treatment for diseases of the pancreas	53.8	27.2

Source: Alko *Yearbooks* (1985–1986) *(2)*. Based on information from the *Statistical yearbook of Finland* (1984), *Criminality known to the police* (1984), and *Causes of death in Finland* (1984), all published by the Central Statistical Office of Finland, Helsinki.

High-risk Groups

The way young people drink has inspired animated public debate in Finland for nearly 30 years. The media have discussed it, and in the 1970s both the Parliamentary Alcohol Committee and the Parliamentary Temperance Education Committee paid special attention to the young. Nevertheless, the mass media, various occupational groups and the general public hold divergent views on the subject, which has prompted social scientists to study to what extent the various ideas and assumptions are justified.

The first piece of Finnish research to focus on young people's drinking habits was conducted in 1960 as part of a wider examination of boys living in the Nordic capitals *(10)*. The first nationwide study of the phenomenon was carried out ten years later *(11)*. The Juvenile Health Habits Study project continued to examine young people's drinking in the 1970s, using broad-based samples *(12)*.

Youthful drinking increased dramatically between the early 1960s and the early 1970s. Once the late 1970s were reached, however, the trend disappeared, and youngsters drank less in 1984 than they had done eight years earlier. Even so, the 1984 consumption figures still exceed the totals for the early and late 1960s.

Girls tend to begin drinking a little later than boys. Their drinking frequency is lower, and the annual alcohol consumption figures for boys are double and even treble those for girls. In the youngest age group, the two sexes were equally likely to drink with the deliberate intention of becoming drunk; in all the other age groups, by contrast, boys were far more prone to drink until they became heavily intoxicated. Similarly, drinking with the aim of becoming drunk accounts for a far higher proportion of boys' annual alcohol consumption *(13)*.

In recent years women's drinking has provoked a great deal of interest and discussion in Finland. The fear that heavy drinking may endanger the fetus has been a new cause of concern and a focus for debate. It is also true that the proportion of alcohol consumed by women grew between 1968 and 1976 from 13% to 21%.

Recent figures show that women drank about 20% of all the alcohol consumed in 1984 *(14)*. In the same year, young boys drank about twice as much as young girls, young men drank about three times as much as young women, and middle-aged men drank about four times as much as middle-aged women. Between 1968 and 1976, women's consumption to the point of intoxication increased, but subsequently declined again. Rates of intoxication among women decline after they marry and have children; the same is not true for men. Finally, being widowed or divorced affects men's drinking habits far more than women's. In 1984, for example, divorced or widowed men drank nine times more than divorced or widowed women *(14)*.

Conclusions

Between the late 1950s and the mid-1970s the consumption of alcoholic beverages almost quadrupled in Finland. Since 1974, total alcohol consumption has been stable at about 6.5 litres of pure alcohol per capita per year.

The increase in alcohol consumption in the 1960s and in the first half of the 1970s was accompanied by a substantial increase in the adverse consequences of drinking. Officially recorded data indicate that there has not been much increase in alcohol-related problems over the last 10 years. In fact, survey results indicate that the incidence of problems experienced by alcohol consumers fell between 1976 and 1984.

At present alcohol misuse is not regarded politically as a big social problem warranting urgent action. However, alcohol-related problems are far more widespread than those caused by tobacco, or by prescribed or illegal drugs. Illegal drugs in particular figure prominently in newspaper coverage, but in reality they lead to far fewer problems than does alcohol.

Like other Scandinavian countries, Finland has for many decades striven to control the consumption of alcohol. It is understandable, therefore, that research on the damage done by drinking has a long tradition in the country. Indeed, the first review on the subject from a broad scientific perspective was published by Helenius in 1902 *(15)*.

There have been various studies on the harm caused by alcohol over the last decade. Epidemiological research on alcohol use and misuse has assessed the number of problem drinkers by using indirect procedures, a sample representing a certain part of the population, or so-called evaluators. Studies of single detrimental factors have sought to reveal the extent of a particular type of alcohol-related damage by using cross-sectional analysis, or have followed the development over time of a particular alcohol problem by means of time-series analysis. Other studies have examined a particular subconcern, such as health care and welfare. Statistics compiled by the authorities have frequently been used as research material *(16)*.

Surveys of drinking habits indicate that it is men rather than women who are at risk from the consequences of prolonged heavy drinking. Men are also more likely to be involved in accidents, fights and occasions linked with intoxication. The last of the three interview studies indicates that alcohol consumption among young people has fallen rather than risen since the mid-1970s, and specific youth research reinforces this conclusion *(13)*. It would appear that alcohol consumption among the older male age groups has become relatively more important over the last 30 or 40 years, so that men of working age are currently the group at highest risk in Finland.

Evidence related directly to alcohol problems also supports this conclusion: the group most at risk consists of economically active men approaching middle age. Two further points, however, must also be emphasized. First, young people — especially young men — are a high-risk group where the adverse consequences of intoxication are concerned; and secondly, the various problems affect different population groups in different ways, so that one should not analyse problems from the viewpoint of age and gender only. Attention must also be paid to high-risk situations and to ways in which they can be avoided, in particular drinking and driving, drinking combined with water-related leisure pursuits, and drinking at public entertainments.

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FRANCE

Marie Choquet[a] & *Sylvie Ledoux*[a]

France is a wine- and spirit-producing country where alcohol is an integral part of life. This explains why France has the highest level of per capita alcohol consumption in Europe. Alcohol is a fundamental component of any celebration or ceremonial and festive occasion: a meal or a party without drinking would be unthinkable. Alcohol, especially wine, is a symbol of, and a catalyst for, fraternity, communication and communion. There is a special type of drink for each time of day: aperitifs before meals, different wines for each course, brandy and liqueurs after meals, champagne for special occasions in family, professional and social life. The ability to recognize wines in terms of their producer, region or vintage is, in France, a sign of social distinction. Even so, alcohol consumption leads to a wide range of excesses. People sing, talk more loudly than normal, laugh, and become uninhibited or even violent. Such extremes are generally disapproved of, at least if they are manifested outside a limited and clearly defined social context.

Although (or perhaps because) alcohol misuse is widespread in France, drinking habits have seldom been the subject of research. Only since the 1970s have epidemiologists focused on the use or misuse of alcohol. Their endeavours, as in other countries, have been inhibited by the fact that alcohol consumption is often a private activity which may easily be underestimated. The following is an attempt to summarize the results of a number of studies which have examined patterns of alcohol consumption within samples of the general population.

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Alcohol Use

Estimating consumption patterns

The general level of alcohol consumption is estimated mainly from taxation data *(1)*. The information indicates that there has been a clear fall in wine sales, from 6.5 million hectolitres of pure alcohol at the beginning of the 1960s to less than 5.5 million at the beginning of the 1980s. Although table wines have followed this general trend, there has been an increase in sales of more expensive wines during this period.

In less than two decades beer consumption in France has doubled, and at the same time there has been a doubling of the strengths of beers. Demand for cider has fallen dramatically. Sales of spirits have also doubled, a development accounted for largely by increased sales of aniseed-based aperitifs.

It appears that during the past 30 years the annual per capita alcohol consumption of people aged 14 and over has declined by 2.7 litres. Since 1963 the fall in consumption has been fairly stable and per capita consumption of those aged 14 and over was 14.5 litres of alcohol in 1985.

Wine remains by far the most popular form of alcoholic beverage in France despite a decline in its pre-eminence involving, as already noted, ordinary table wines. Beer and spirits consumption are increasing as wine-drinking declines. Cider is now drunk only rarely.

Consumption in relation to age and sex

A recent household survey *(2)* has yielded a considerable amount of information about patterns of alcohol use among different subgroups of the population. Some of the main results are summarized in Tables 1 and 2, while Fig. 1 gives further details of demographic variations in levels of "regular" alcohol consumption.

Two thirds of men and 39% of women reported that they regularly consumed one or more alcoholic drink. As shown in Fig. 1, many men were relatively heavy drinkers. Women's consumption levels were much lower. Almost the same proportion (28%) of both men and women drank one or two glasses of wine each day, but 10% of men and only 0.7% of women reported consuming five or more glasses of wine daily. The proportion of regular drinkers rose with age up to age 45 for males and age 35 for females. The heaviest-drinking group of men were those aged 45–54 years.

The proportion of people who reportedly consumed at least three glasses of alcoholic drink per day rose with age until 45 years for men and 35 years for women. This pattern is parallel to that of the proportions of regular drinkers. Beyond those ages, drinking remains fairly stable until the ages of 75 for men and 65 for women; afterwards a fall is evident, which may be attributable partly to a voluntary reduction in alcohol consumption because of health problems (some of which may be alcohol-related).

Beer is especially popular among the young. As shown by Tables 1 and 2, the proportion of daily beer or cider drinkers is particularly high among men aged 25–34 and women aged 35–44. The proportion of daily wine drinkers of both sexes generally rises with age.

These general patterns are confirmed by a number of surveys related both to the general population and to people with alcohol-related problems registered by helping agencies. According to Playoust & Zylberberg *(3)* such surveys underestimate the real levels of alcohol consumption. Reference to taxation data or alcohol production statistics suggests that surveys reveal only 58% of alcohol consumption. Unfortunately it has not yet been possible to determine the characteristics of survey respondents who underreport their consumption.

Regional differences

The percentage of drinkers varies according to the regions of France. Approximately 70% of men (with a range of 62% to 75%) and 40% of women (with a range of 32% to 49%) report that they sometimes drink alcohol. Consumption patterns and levels of alcohol problems also vary between regions.

As Fig. 2 shows, levels of alcohol consumption appear to be especially high in four regions: the north, Brittany, Alsace-Lorraine and Poitou-Charentes. More than 5% of men in these areas reported consuming at least nine glasses of alcoholic drink each day. In Aquitaine and the Rhône-Alpes region, fewer than 2.5% consume such quantities.

Other studies support the view that alcohol consumption is particularly high in northern, eastern and western regions. It has also been noted that beer and cider are predominant in the north, Brittany and the east *(4,5)*. In contrast, wine appears to be the predominant, even exclusive, drink in the centre and south-west of France *(6)*.

In the wine-producing regions, such as central France and the south coast, wine is virtually the only form of alcohol consumed, but in areas where other drinks, such as cider and beer, are produced, they are consumed as well as wine. For example, in the east, where beer is produced, 35% of men drink it regularly, but this does not prevent 70% of the population from drinking wine. The latter is a hallmark of French culture even outside viticultural regions.

Alcohol consumption and socioeconomic status

Socioeconomic status has an important influence on alcohol use by men. Among those in employment, the proportion of drinkers is higher than

Table 1 Daily use of specific types of beverage in relation to age, males, 1980

Age group (years)	No. of respondents	Type of drink			Category of drinker			
		Wine (%)	Beer and cider (%)	Aperitif and digestive (%)	Drinkers (%)	Non-drinkers (%)	Non-response (%)	Total (%)
15-19	936	11.1	10.1	1.3	20.4	76.9	2.7	100.0
20-24	808	30.9	23.3	4.4	44.6	51.4	4.0	100.0
25-34	1532	55.4	29.9	8.3	67.1	31.6	1.3	100.0
35-44	1170	67.6	24.8	9.9	75.0	24.4	0.6	100.0
45-54	1309	73.8	21.9	9.3	79.2	19.6	1.2	100.0
55-64	968	76.0	18.7	8.5	81.4	18.0	0.6	100.0
65-74	712	78.2	15.3	5.3	82.9	16.3	0.8	100.0
75 and over	409	76.5	10.3	3.7	80.9	15.7	3.4	100.0
Percentage total		58.2	21.1	7.0	66.3	32.1	1.6	100.0
Total	7844	4565	1657	946	5202	2515	127	

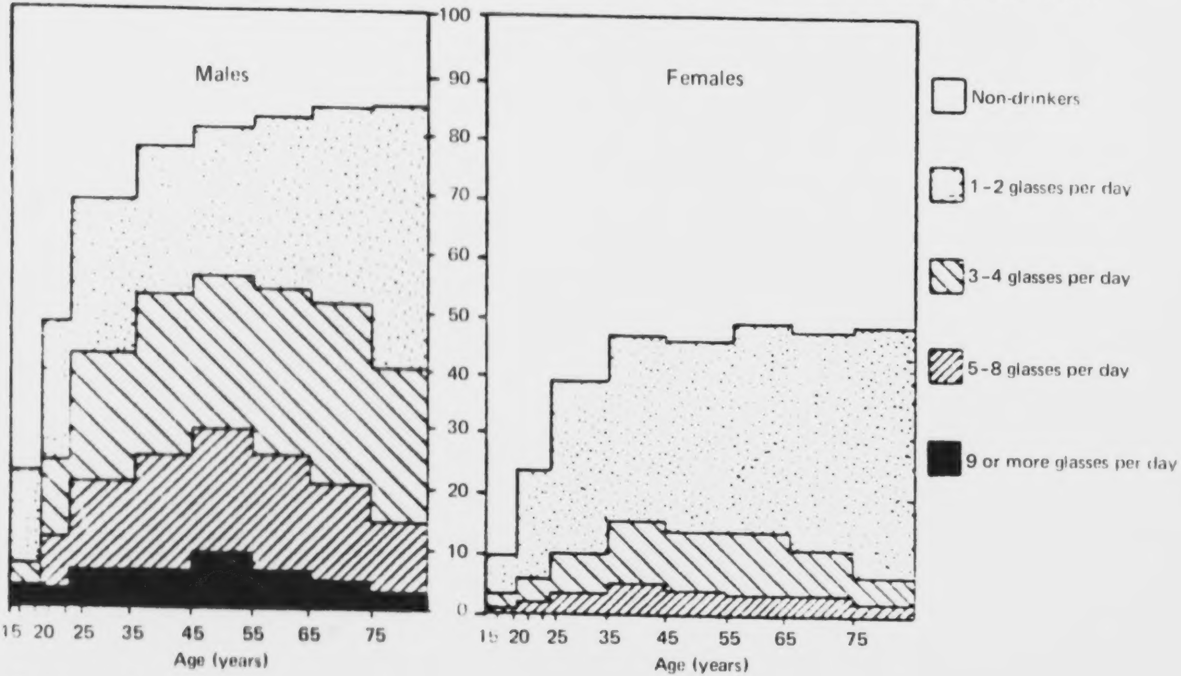
Source Le Laidier *(2)*

Table 2. Daily use of specific types of beverage in relation to age, females, 1980

Age group (years)	No. of respondents	Type of drink			Category of drinker			
		Wine (%)	Beer and cider (%)	Aperitif and digestive (%)	Drinkers (%)	Non-drinkers (%)	Non-response (%)	Total (%)
15-19	85	4.6	4.4	0.6	9.5	88.4	3.2	100.0
20-24	81	15.6	7.7	1.8	22.7	75.0	2.3	100.0
25-34	154	31.1	10.3	3.0	38.1	61.1	0.8	100.0
35-44	111	39.5	12.3	2.9	46.3	53.1	0.6	100.0
45-54	130	39.2	9.5	2.6	45.6	53.5	0.9	100.0
55-64	102	43.1	8.2	2.7	48.1	50.7	1.2	100.0
65-74	91	41.5	7.3	1.6	45.8	52.9	1.3	100.0
75 and over	60	43.3	5.0	2.3	46.8	50.3	2.7	100.0
Percentage total		33.0	8.6	2.3	38.7	59.9	1.4	100.0
Total	837	2763	720	194	3244	5013	119	

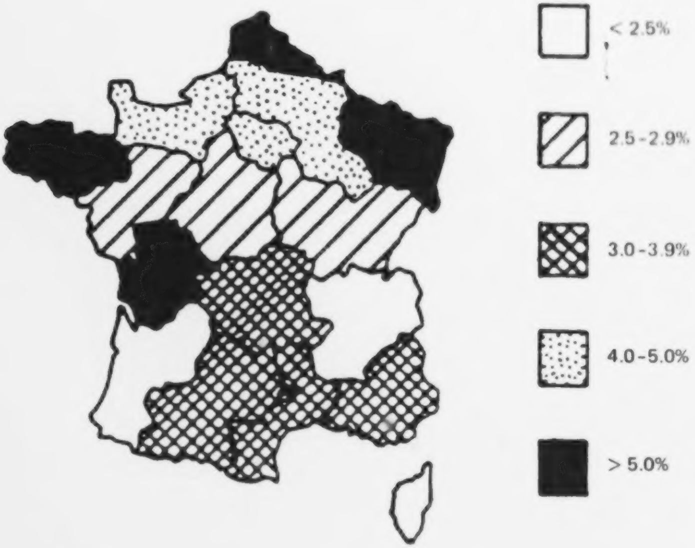
Source: Le Laidier *(2)*.

Fig. 1 Proportions of regular drinkers by sex and age, according to amount drunk, 1980



Source Le Laidier *(2)*

Fig. 2. Geographical distribution by region of males aged 15 or over who consume nine or more glasses of alcoholic drink every day



Source Le Laidier *(2)*

average in farmers, the self-employed, small shopkeepers, manufacturers, traders and skilled workers, but lower than average among managers, unskilled workers and employees *(2)*. The effect of socioeconomic status is not nearly so marked among women, who generally drink much less than men do.

Alcohol-related Problems

Numerous studies have shown that the misuse of alcohol leads to both excessive general mortality and mortality from specific causes (such as cirrhosis of the liver) and also to higher morbidity *(1,7,8)*.

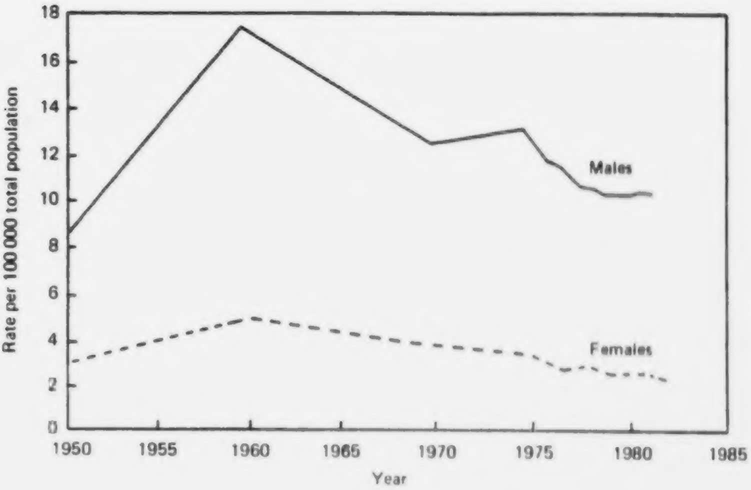
In 1982, about 18 000 deaths (13 000 in males and 5 000 in females) were attributed mainly to chronic alcohol dependence, representing 3% of all deaths in that year. Yet despite their enormity, these figures do not reveal the true extent of the problem. Excessive drinking is a contributory factor in a number of illnesses and deaths attributed to other causes, as well as in many accidents. It is estimated that there are 50 000 alcohol-related deaths in France each year.

Recent trends in levels of mortality from alcoholism/alcohol dependence, alcoholic psychosis and cirrhosis of the liver are depicted in Fig. 3 and 4.

As Fig. 3 shows, death rates from alcoholism/alcohol dependence and alcoholic psychosis rose during the 1950s but have declined since 1960. In contrast, Fig. 4 shows that mortality from cirrhosis of the liver rose until much more recently. Between 1950 and 1975, the rate for males rose from 24 to 55 deaths per 100 000 total population, and for females from 11 to 19 per 100 000. Since 1976 the death rates for cirrhosis of the liver for both sexes have been falling.

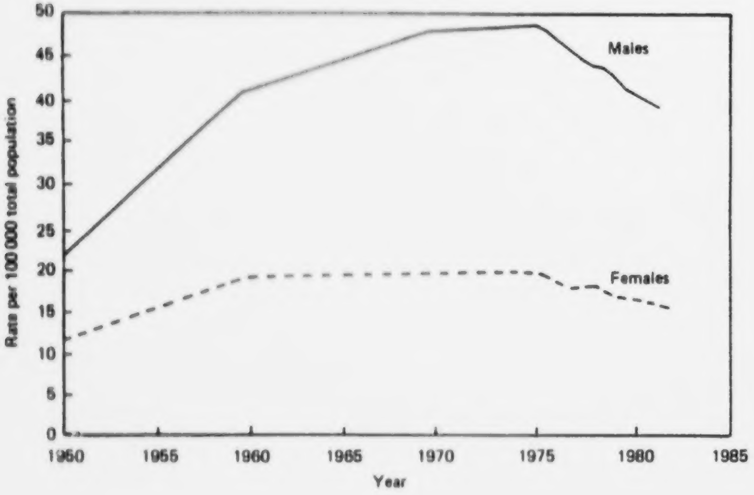
A similar pattern is evident in relation to deaths from malignant tumours of the throat and digestive system. The rates for males rose from 39 per 100 000 in 1954 to 62 per 100 000 in 1976. Subsequently, this rate has

Fig. 3. Trends in mortality from alcoholism/alcohol dependence and alcoholic psychosis, 1950–1982



Source: Robine et al. *(8)*.

Fig. 4. Trends in mortality from cirrhosis of the liver, 1950–1982



Source: Robine et al. *(8)*.

not declined. However, the corresponding death rate for females has been stable for 20 years at 4 per 100 000.

A fall in per capita alcohol consumption, therefore, has been accompanied by a decline in alcohol-related mortality. Predictably, alcohol-related deaths are highest in those regions, such as the north, Brittany, Alsace-Lorraine and Poitou-Charentes, where alcohol consumption is also high.

Morbidity

Problems associated with alcohol misuse impose a considerable burden on family doctors. A survey conducted by INSERM in 1975 indicated that alcohol misuse was implicated in 1% of all consultations and that two thirds of this misuse involved alcohol dependence. Furthermore, many regular drinkers experience adverse consequences of their alcohol consumption but do not seek medical assistance. Alcohol dependence and cirrhosis of the liver alone accounted for 4.1% of male diagnoses and 1.4% of female hospital discharges, according to one study of public hospitals conducted in 1978 *(2)*.

The Relationship of Alcohol to Other Psychoactive Drugs

Table 3 shows that two thirds of French adults drink alcohol every day, while only a third smoke daily. The proportion of drinkers increases with age, while that of smokers decreases.

Table 3. Percentages of daily drinkers and smokers, by age and sex

Age group (years)	Males		Females	
	Daily drinkers	Daily smokers	Daily drinkers	Daily smokers
15-24	35	38	15	27
25-44	71	52	42	21
45-54	80	43	47	11
55 and over	82	32	46	3
Total	62	43	39	16

Source: Le Laidier *(2)*.

The proportion of women who are prescribed psychoactive drugs such as tranquillizers — about 20% — is similar to that of women who smoke.[a]

As Table 4 shows, men who drink more heavily are also more likely to smoke.

The use of alcohol and the use of other psychotropic drugs are not necessarily associated in adults[a] and may even be mutually exclusive. Of men who consumed aperitifs regularly, 5% reported taking prescribed psychotropic drugs, compared to 17% of non-drinkers. For women, the corresponding proportions were 12% and 31%.

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[a] **Davidson, F. & Choquet, M.** La consommation des produits psychotropes (alcool, tabac, médicaments) parmi les adultes des Bouches-du-Rhône (unpublished survey data).

Table 4. Percentages of smokers in the male and female populations, according to amount of alcohol consumed

Daily consumption of alcohol	Smokers (%)	
	Males	Females
Nil	36	22
1-4 glasses	44	16
5-8 glasses	55	24
9 or more glasses	67	—

Source: Le Laidier *(2)*

Young People

Most studies of alcohol misuse in adults have been confined to measuring alcohol consumption. The numerous studies of adolescents, however, have also attempted to assess the significance and consequences of drinking by the young.

Regular consumption

The percentage of young people who drink does not differ markedly from the percentage in the adult population. However, as shown in Table 5, some 30% of adolescent boys studied and 7% of girls consumed alcohol daily, as compared to 73% of men and 42% of women. Adolescents differ from adults in their preferences: in particular, the young are less likely than adults to drink wine *(10,11)*. The proportion of daily consumers of wine among male students fell by a third between 1971 and 1978, from 12% to 8%. The corresponding rate for female students remained fairly steady at around 5%.

Young people's favourite drink is beer *(12,13)*. The daily consumption of beer has increased among young males, but has remained unaltered among young females since 1971. The regular consumption of spirits (i.e. at least twice a week) fell by about 50% between 1971 and 1978. Between 1978 and 1984, however, this trend was replaced by an upsurge in the consumption of spirits *(10,11)*. As in other countries, boys drink more than girls; furthermore, some adolescents drink relatively heavily. Most studies indicate that regular and heavy drinking, especially by boys, increases between the ages of 15 and 18 *(10,14)*.

Table 5. Percentages of young people consuming alcohol regularly, 1971-1984

Consumption pattern	Year		
	1971	1978	1984
Males			
Daily wine consumption	12	8	11
Daily beer consumption	12	17	22
Regular[a] consumption of spirits	13	5	18
Females			
Daily wine consumption	5	5	2
Daily beer consumption	4	4	6
Regular[a] consumption of spirits	4	3	8

[a] At least twice a week.

Source: Choquet & Ledoux *(9)*.

The regional differences evident in the general population can also be seen in adolescents, emphasizing that the acquisition of drinking habits is influenced by cultural and local factors. Regional differences are especially evident in relation to the types of drink preferred by adolescents *(9, 11, 12, 14, 15)*. Wine was the most popular form of alcoholic drink in the Bouches-du-Rhône area between 1971 and 1978, whereas beer was the most popular in Brittany. In the Paris area there was no particular preference for any single beverage either in 1971 or in 1978.

Between 1971 and 1978, young males in Brittany considerably increased their consumption of wine, while those in the Bouches-du-Rhône area reduced their wine consumption. The consumption of spirits also declined overall in that period. These regional differences are especially marked among males; even so, broadly similar patterns are also apparent among females.

The youthful search for intoxication

"Regular" drinking is less common in adolescents than in adults; nevertheless, potentially harmful drinking by the young has been increasing, and with it the prevalence of drunkenness. Over a period of six years the proportion who had been intoxicated rose from 35% to 45%. Those reporting repeated episodes (three of more) of intoxication rose from 7% to 20%. In 1984 nearly 1 young male in 4 and 1 young female in 6 had reportedly been drunk three or more times in the past year. In 1978 the corresponding proportions were only 1 in 10 and 1 in 23 (Table 6).

Table 6. Percentages of young people experiencing intoxication, 1978 and 1984

	Year			
	1978		1984	
	Males	Females	Males	Females
Ever been intoxicated	42	27	50	43
Experienced frequent intoxication	10	4	24	15

Source Choquet & Ledoux *(9)*

The frequency of intoxication rises with age. Among boys, the proportion reporting being frequently drunk rose from 22% to 46% between the ages of 15 and 18; the level for girls remained stable between the ages of 15 and 19 *(9, 14)*. There are, again, some regional differences. In 1978, boys from Brittany had the highest rates of frequent intoxication, followed by those from the Paris area. A big gap separated the rates in these two areas from those of Bouches-du-Rhône. The regional variations for girls were far smaller *(11)*.

Repeated episodes of intoxication in young people indicate a desire to induce an altered state of consciousness, a different perception of reality. Regular drinking, in contrast, is a means of conforming to accepted social customs. Nevertheless, there is a clear link between general levels of alcohol consumption and intoxication. Some changes had occurred between the two study years. Young people who drank relatively little or seldom were more likely to have experienced intoxication (12%) in 1984 than they had been during 1978 (4%).

Alcohol-related problems

A study of some of the problems experienced by young people with varying alcohol consumption patterns was conducted by Choquet et al. in

6

1986 *(16)*. Their findings are illustrated in Table 7. As the table shows, respondents who had been intoxicated three or more times in the previous year were significantly more likely than others to report having had outbursts of violence, being involved in fights, being absent from school, committing thefts and using illegal drugs. By contrast, intoxication and regular alcohol use were not significantly associated with functional disorders such as sleeplessness or depression.

The systematic use of alcohol in order to become intoxicated is associated with a range of deviant forms of behaviour. The link was especially marked among young people reporting having been intoxicated 10 or more times in the past year. Moderate drinking, on the other hand, does not have such implications or connections.

Other forms of alcohol-related behaviour

Several other forms of alcohol-related behaviour have been investigated, including involvement in accidents *(5,17)* and crimes *(18)* and attempted suicide *(19)*.

A study of road accident victims of all ages showed that the risk of being identified as responsible for a fatal accident was 10 times greater for people with blood alcohol levels of between 0.8 and 1.2 grams per litre. The risk was 80 times greater for people whose blood alcohol level exceeded 2.0 grams per litre. Similar findings have been reported in other countries *(17,20)*.

A study of 190 young accident victims revealed that 97% were male, and that a third of the accidents occurred on a Saturday, half of them between 9 p.m. and 6 a.m. In addition, 67% of the victims had blood alcohol levels of over 0.8 grams per litre and 15% had levels over 2.0 grams per litre. Some 65% of those judged to be responsible for an accident had elevated blood alcohol levels, compared to only 46% of those judged not to have been responsible.

Alcohol is clearly an important factor in accidents and males who go out on Saturday nights appear to be particularly vulnerable in this respect. Even so, studies such as that just mentioned do not, by themselves, clarify either the role of alcohol or the implications of the context in which drinking occurs in terms of potential consequences. Both the use of alcohol and its consequences may be influenced by many independent factors.

Violence associated with heavy alcohol consumption on a specific occasion appears to be the most common type of crime *(18)*. More serious offences also are often committed under the influence of alcohol. Most of these acts appear to be unpremeditated and violence generally occurs during the early phases of intoxication.

Approximately 13% of young people who had made parasuicidal gestures had drunk alcohol beforehand. According to Facy & Philippe *(19)*, however, alcohol is not the only factor responsible: the young people

Table 7. Relationship of alcohol consumption to behavioural problems and functional disorders in 18-year-olds

Type of problem	Percentage[a] of those who		
	had been intoxicated at least three times in the past year (N = 99)	drank alcohol regularly without intoxication (N = 37)	abstained or drank occasionally (N = 191)
Behavioural problems			
Violent outbursts[b]	67	35	32
Fighting[b]	69	35	21
Absence from school[c]	16	0	3
Theft in public places[b]	39	14	8
Illicit drug use[c]	33	12	9
Funtional disorders			
Sleeplessness[d]	20	27	26
Often complain of			
tension[d]	29	16	20
fatigue[d]	27	29	27
depression[d]	7	8	13
agitation[d]	22	14	15

[a] Percentages adjusted according to sex

[b] $P < 0.01$

[c] $P < 0.001$

[d] Not significant

Source: Choquet et al. *(16)*.

who make these attempts often have difficulties such as unemployment, or psychological or social problems. Some 34% of parasuicides who had consumed alcohol before their suicide attempts had several types of problem, compared to only 17% of those who had not.

The association between alcohol and other drugs

Regular drinking and intoxication are associated with the use of tobacco and of legal and illegal psychotropic drugs. The use of tobacco is markedly higher among heavy and regular drinkers who frequently become drunk. The use of prescribed psychotropic drugs is higher among regular and heavy drinkers than among light drinkers and abstainers. Illicit drug use is far more closely related to frequent drunkenness than to regular or heavy alcohol use in themselves.

Identifying risk factors

Several studies have attempted to isolate factors that identify high-risk adolescent drinkers by examining the possible relevance of both sociodemographic variables and personal and family relationships *(13,14,21)*. The evidence produced by these investigations indicates that there are some clear risk factors.

Young people — particularly young men at the beginning of their working lives — seem to be especially prone to the regular and problematic use of alcohol *(9,11)*. Also at high risk of misuse are young men and women who have an active and varied pattern of social relationships *(14,21)*. These individuals like to assert themselves, take risks and try new experiences. They are vulnerable whenever they "break the rules", including those related to alcohol, even though they do not necessarily risk becoming alcohol-dependent. These sociable young people have to be shown that there are alternatives to unwise or excessive drinking which can be equally appealing, without destroying their desire to mix with others and to enjoy themselves.

Adolescents — especially young women — with serious psychological problems are also at risk of having alcohol-related problems *(14,21)*. In their case, alcohol may serve to combat anxiety and depression.

The young are not only at risk in relation to alcohol, but also in relation to other drugs, psychosomatic problems and parasuicide. Alcohol misuse is also especially common among young people who exhibit a range of deviant or anti-social forms of behaviour *(14)*, including violence, truancy, theft and illicit drug use.

Conclusions

In contrast to the experience of some countries, per capita alcohol consumption in France has fallen during the past 15 years, a change reflected in the reduction in alcohol-related mortality. On the other hand it is noteworthy that the consumption of some types of drink, such as beer and certain strong drinks, has been rising, and there also appears to have been an increase in certain forms of alcohol use, notably drinking to the point of intoxication.

The likely effects of such changes are unclear. It would be interesting to assess the impact of the adoption of new forms of alcoholic drink and the persistence of excessive drinking and its implications (if any) after adolescence. Other possible topics for future research include the reduction in wine consumption in viticultural areas and its replacement by other products; changing social perceptions of the role of alcohol; and the influence of changing patterns of alcohol consumption on morbidity and mortality.

Specialized alcohol studies are rare and researchers face a number of difficulties due to several factors. Firstly, alcohol has an ambiguous role in French culture. In spite of its associated problems, drinking is symbolic of conviviality and strength. There is frequently resistance to research both from researchers (because of their perception of the feasibility of projects) and from the population (in the form of non-cooperation, guilt and under-reporting). Secondly, the wide range of drinks and styles of drinking present practical problems for research.

Most epidemiological studies attempted to date have concentrated on measuring alcohol consumption. The effects of drinking, notably intoxication, have not been examined in a representative general population study in France. More information has been elicited, however, from young people; this is because alcohol misuse and the associated use of illegal drugs by adolescents have been identified as a cause for concern. Youthful drinking has been of particular interest because drinking habits become firmly established during adolescence, and because it is hoped that policies for the prevention of alcohol misuse will be especially relevant to this age group.

Most of the evidence available relates either to young people or to alcohol-dependent adults. The transition from drinking to the development of serious alcohol problems has not been adequately investigated.

Longitudinal studies are recommended, therefore, to monitor alcohol use and misuse in people between the ages of 18 and 28 years. These studies should cover other drugs as well as alcohol, and also a wide range of related potential consequences. Researchers should try not only to identify factors which encourage or prevent the development of problems but also to distinguish between the use and misuse of alcohol in various subgroups classed according to factors such as age, sex and other sociodemographic variables. The distinctive role, character and consequences of drinking and alcohol misuse by women deserve special attention.

To complement biomedical research — already well established — it would also be worth while developing a programme of social and psychological studies using epidemiological methods. Several themes warrant investigation, including the relationships between alcohol on the one hand and work, criminality, the life cycle, social class, sex roles and alternatives to alcohol (other drugs, parasuicide, suicide, etc.) on the other.

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FEDERAL REPUBLIC OF GERMANY

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Drinking is a popular and well established activity in the Federal Republic of Germany. This review gives a general description of recent trends in alcohol consumption and alcohol-related problems, setting them against the historical background of traditional German drinking practices. It then focuses on one particular subgroup of the population whose drinking places both them and others at high risk of serious consequences, and concludes with priorities for future research.

Alcohol Consumption

Levels of per capita alcohol consumption have changed markedly in the Federal Republic of Germany over the last 40 years. In 1950 the annual per capita consumption was only 3.3 litres. It rose to a peak of 12.7 litres in 1980, and has since levelled off (Table 1).

People began drinking more during the first 25 years after the Second World War. Although per capita incomes are still increasing, however, the growth in consumption has now come to a halt. There is obviously an association between income and per capita alcohol consumption, but clearly not a simple causal relationship. As Table 1 shows, drinking habits underwent major changes between 1950 and 1970.

It is misleading to consider these drinking habits only in the context of the last few decades; this is why Table 1 includes information for 1900, when per capita consumption was as high as 10.1 litres of pure alcohol. As is well known, alcohol consumption fell in Germany (as in several other

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Table 1. Annual per capita consumption of alcoholic drinks (in litres) in the German Reich and in the Federal Republic of Germany,[a] including Berlin (West), 1900-1984

Type of drink	Year						
	1900	1950	1960	1970	1975	1980	1984
Beer	125.1	38.1	95.6	141.1	147.9	145.7	144.8
Wine, cider, champagne	6.7	5.1	16.0	19.5	25.7	26.6	25.8
Spirits	11.3	3.0	5.1	7.9	8.0	8.8	6.3
Equivalent in litres of pure alcohol[b]	10.1	3.3	7.8	11.4	12.4	12.7	11.9
Per capita income (DM)[c]	—	—	5 466	11 141	16 641	24 132	27 209[d]

[a] For detailed data, see: Deutsche Hauptstelle gegen die Suchtgefahren, ed. *(1)*; Statistisches Bundesamt, ed. *(2)*; Hoffmann *(3)*; Vogt *(4)*.

[b] It is assumed that 1 litre of beer contains 4.4% of alcohol by volume, 1 litre of wine, cider or champagne 12%, and 1 litre of hard liquor 38%. *See also* Deutsche Hauptstelle gegen die Suchtgefahren, ed. *(1)*, p. 1.

[c] *In:* Statistisches Bundesamt, ed. *(2)*. *See also* Zapf & Glatzer, ed. *(5)*, pp. 343 ff.

[d] Per capita income in 1983.

countries) during the First World War and increased during the period between the wars. Even so, consumption remained relatively low during the latter period because of the economic problems of the 1920s and the social problems of the 1930s. One may conclude, therefore, that in times of prosperity — around 1900 and since 1950 — the population has a strong inclination to drink fairly large quantities.

From a historical perspective, it appears that the decreases in per capita consumption were not accompanied by changing social values concerning drinking and drunkenness — or at least, the changes were not lasting. This is consistent with the weakness of the temperance movement in the country, which has had little influence on everyday life *(6)*.

Preferences for specific types of alcoholic drink have changed during the last 100 years. Around 1880 spirits were especially favoured by industrial and farm workers *(4,7)*. Around the turn of the century beer, partly due to its low price, became the most popular drink among working men. Before then, in northern areas (especially in Prussia) beer had been most popular among the middle classes and the rich.

Today, beer is the most widely consumed drink among men of all socioeconomic groups, even when one takes regional differences in drinking habits into account. There is a preference for wine in some western areas and for spirits in the north. Beer remains the first choice of frequent and regular drinkers (Table 2).

Wine is the second most popular drink, although only a minority of drinkers take it daily. It is more expensive than beer, and wine consumption reflects the drinker's income. Wine is frequently linked with special occasions such as Sunday meals, festivities and celebrations, a tradition less pronounced in wine-producing regions such as the Rhine valley but fairly strong in northern and southern regions. Wine is the most popular alcoholic drink among women; it is not certain why, but there is some evidence to suggest that some women prefer it to beer not only because of the taste but because it has fewer calories. Also, women generally drink less often than men, so they are more likely to associate alcohol with special occasions, which they celebrate with wine. Consumption by women increases in relation to family income, implying that female drinking habits are associated with affluence and social position *(8)*.

Spirits — including brandy, whisky and cognac — are the third most popular type of alcoholic drink. It is as rare for spirits to be drunk daily as it is for wine; however, men of all socioeconomic groups sometimes drink spirits in certain situations. Often, beer and spirits are drunk at the same time. Upper- and middle-class men show a preference for imported brandies, whiskies and cognacs, while blue-collar workers favour German brandies. Women prefer sweet liqueurs and German brandies.

Drinking patterns are still changing, apparently. While beer remains pre-eminent, wine has attracted some new consumers, especially affluent

Table 2. Percentages of the population of the Federal Republic of Germany and Berlin (West) consuming different types of alcoholic drink, by frequency of consumption, 1976–1984

Frequency of consumption	Year			
	1976	1978	1980	1984
Beer				
Regularly every day	17	11	13	14
Regularly several times per week	20	17	15	36
Sometimes, seldom	43	37	37	20
Never	21	34	34	30
Wine				
Regularly every day	3	3	3	3
Regularly several times per week	18	12	12	20
Sometimes, seldom	66	58	52	53
Never	13	26	31	26
Spirits				
Regularly every day	2	3	3	2
Regularly several times per week	10	5	8	11
Sometimes, seldom	52	39	34	34
Never	34	52	52	53

Source: *Aktionsgrundlage der BZgA (9)*, p. xii. *See also Materialen zum Alkoholmißbrauch in der Bundesrepublik Deutschland einschließlich West-Berlin (10)*, Der Spiegel, ed. *(11,12)*, Reuter *(13)*

women. Spirits have lost some of their appeal, partly due to tax increases in 1981 and 1982 *(14,15)*.

The choice of type of drink is related to social class. Men of all classes drink with much the same frequency and consume similar quantities. They vary, however, in relation to the consumption of spirits, more expensive brands being purchased by those who can afford them. The relationship between social class and drinking is especially pronounced among women. Those in the higher socioeconomic groups drink more than those in the lower, and their favourite drink is wine.

The distribution by sex of abstainers, moderate drinkers, heavy drinkers and very heavy drinkers is shown in Table 3. Most people can be classed as moderate drinkers. Abstinence and heavy daily consumption (80 grams of alcohol or more) are rather rare. Women are far more likely

Table 3. Percentages of abstainers, moderate drinkers, heavy drinkers and very heavy drinkers in the Federal Republic of Germany, by sex

Sex	Abstainers	Moderate drinkers (1-40 g/day)	Heavy drinkers (41-80 g/day)	Very heavy drinkers (≥81 g/day)
Females	8	44	2	1
Males	3	32	8	3
Total	11	76	10	4

Source Materialen zum Alkoholmißbrauch in der Bundesrepublik Deutschland einschließlich West Berlin (10), pp. 10-19

than men to be either abstainers or moderate drinkers. Men are much more likely than women to be heavy or very heavy drinkers.

Women drink moderately at all age groups and whatever the type of drink, as shown by Tables 4 and 5. They drink much less beer and spirits than men do, and even in the case of wine they consume smaller quantities per drinking occasion. Men are much more willing to indulge in heavy drinking with all types of drink than women; they often consume large quantities of alcohol during short periods without being aware of what they are doing. Memory lapses and blackouts are fairly common in men who drink: about one third report experiencing them periodically, compared to only 6% of women. Gipser & Stein-Hilbers *(16)* report that most women refrain from heavy drinking because they fear these forms of loss of control. Most men, on the other hand, find it quite acceptable to get drunk periodically.

A number of indications suggest that men and women have different values in relation to drinking. From their teenage years, boys are encouraged to drink with adult men or with their peers. Between the ages of 15 and 20 years they are expected to get very drunk on at least one occasion *(17-20)*. This ritual of drinking to excess is most pronounced during military service *(21)* and in other all-male clubs and institutions. The capacity to imbibe large quantities of alcohol and being able to "hold one's drink" are accomplishments closely linked to conceptions of virility. However, pride in one's drinking skills is also linked with contempt for those who become dependent on alcohol *(22)*. Men, therefore, have to learn to cope with heavy drinking even when intoxicated, but are expected somehow to avoid severe alcohol dependence. This last, in German culture, is not regarded as beginning with blackouts and amnesia *(23)*.

In contrast, women's drinking habits are closely observed and often discussed publicly. Since the 1970s, the number of conferences and pamphlets on "women and alcohol" has proliferated, although the amount of serious research has failed to keep pace with the level of public discussion. Many researchers have suggested that changing female drinking habits are at least indirectly explained by the feminist movement, which stresses the economic and emotional emancipation of women *(24)*. Underlying such arguments is the assumption that it is too stressful for women to guide their own daily life and work: if they take responsibility for their own lives, this is supposed to lead to excessive drinking and alcohol dependence. A return to the traditional female role of housewife is advocated as a solution to women's problems of alcohol misuse *(25,26)*.

There is no empirical support for arguments of this kind: the information available does not indicate that there has been a disproportionate increase in alcohol-related problems among women since the mid-1960s. All the indications are that alcohol problems related to accidents, employment and the family are much more common among men than among women.

Table 6 shows that mortality rates from alcoholism and cirrhosis of the liver have increased for both sexes since 1968. Even so, there has not been a convergence of the rates for the two sexes. Furthermore, studies of alcohol-dependent women draw attention to the family disturbance and violence to which they have often been subjected, and point out that such experiences gravely undermine women's self-esteem, making them more likely to have recourse to heavy drinking to assuage their suffering *(31,32)*. Looking at it from this perspective, one can conclude both that men may contribute to alcohol problems among women, and that such problems may sometimes be caused by female failure to become emancipated.

As noted earlier, in the Federal Republic of Germany high per capita alcohol consumption is invariably accompanied by a high level of alcohol-related problems, the best known and best documented being road accidents. The *health* problems associated with regular and heavy drinking, on the contrary, pass largely unnoticed *(33)*. Drunken driving and alcohol-related accidents mainly involve men. The majority of regular and heavy drinkers are also men, so drunken drivers are evidently an important high-risk group.

Drunken Drivers

Driving while intoxicated first became a cause for concern during the mid-1930s; the first related legislation also dates from that period. Since

Table 4. Alcohol consumption among males in the Federal Republic of Germany and Berlin (West), 1984

Type and quantity of drink	Age group (%)						Total
	14-19 years	20-29 years	30-39 years	40-49 years	50-59 years	≥ 60 years	
Beer (litres)							
Never consumed	43	11	5	11	11	20	16
Amount consumed per occasion or day							
0.2-0.5	28	20	18	27	31	38	29
0.6-1.0	21	37	35	33	40	31	34
1.1-1.5	8	15	18	13	8	5	9
1.6-2.0	3	12	12	13	5	2	8
≥ 2.1	—	4	10	4	4	2	3
Wine (litres)							
Never consumed	50	25	27	26	29	36	32
Amount consumed per occasion or day							
0.1-0.3	17	33	25	21	21	21	23
0.4-0.5	23	25	20	27	29	19	25
0.6-0.8	6	11	20	18	13	17	14
≥ 0.9	4	6	7	7	8	5	6
Spirits (centilitres)							
Never consumed	64	40	34	39	38	48	43
Amount consumed per occasion or day							
2-4	21	39	36	40	37	36	34
6-10	12	25	25	15	24	15	19
12-16	3	4	2	2	1	—	2
≥ 18	—	2	2	2	—	—	1

Source: *Aktionsgrundlage der BZgA (9)*, pp. 22-27

Table 5. Alcohol consumption among females in the Federal Republic of Germany and Berlin (West), 1984

Type and quantity of drink	Age group (%)						Total
	14-19 years	20-29 years	30-39 year	40-49 years	50-59 years	≥60 years	
Beer (litres)							
Never consumed	49	38	39	34	43	52	43
Amount consumed per occasion or day							
0.2-0.5	36	39	42	49	43	38	38
0.6-1.0	13	16	10	14	14	8	14
1.1-1.5	—	4	4	1	—	1	2
1.6-2.0	—	2	4	2	—	—	1
≥2.1	—	1	1	1	—	1	1
Wine (litres)							
Never consumed	25	15	13	15	20	30	21
Amount consumed per occasion or day							
0.1-0.3	46	49	36	37	38	44	43
0.4-0.5	26	23	33	35	32	17	26
0.6-0.8	2	6	10	8	9	4	6
≥0.9	1	5	6	3	1	4	3
Spirits (centilitres)							
Never consumed	59	59	52	54	67	73	62
Amount consumed per occasion or day							
2-4	37	31	36	36	28	25	32
6-10	3	10	12	7	4	1	5
12-16	—	—	—	—	1	—	—
≥18	1	—	—	—	—	—	1

Source: *Aktionsgrundlage der BZgA (9)*, pp. 22-27

Table 6. Alcohol consumption and mortality rates from alcoholism and cirrhosis of the liver, 1968–1981

Year	Per capita consumption of pure alcohol (in litres)	Mortality rates per 100 000 population					
		Alcoholism			Cirrhosis of the liver		
		Males	Females	Ratio	Males	Females	Ratio
1968	10.3	1.5	0.5	3.0:1	32.1	16.9	1.9:1
1969	10.8	1.9	0.6	3.2:1	32.8	16.9	1.9:1
1970	11.4	2.1	0.6	3.5:1	33.6	16.3	2.1:1
1971	12.2	2.7	0.8	3.4:1	33.9	16.6	2.1:1
1972	12.0	3.2	0.9	3.5:1	34.5	16.6	2.1:1
1973	12.2	3.6	1.0	3.6:1	35.9	16.3	2.2:1
1974	11.6	4.1	1.4	2.9:1	37.8	17.0	2.2:1
1975	12.4	5.3	1.7	3.1:1	39.5	17.4	2.3:1
1976	12.3	6.2	1.7	3.6:1	39.9	17.3	2.3:1
1977	12.3	6.3	1.9	3.3:1	38.8	17.4	2.2:1
1978	12.3	6.8	1.9	3.6:1	38.9	17.4	2.2:1
1979	12.7	6.6	1.9	3.4:1	38.2	17.8	2.2:1
1980	12.7	7.2	2.0	3.6:1	37.0	17.1	2.2:1
1981	12.4	6.6	2.0	3.3:1	37.2	17.4	2.1:1

Source: Deutsche Hauptstelle gegen die Suchtgefahren, ed. *(1)*; Statistisches Bundesamt, ed. *(27)*; and personal communication. *See also* Leibach *(28–30)*.

1930 there has been an increase in both the number of motor vehicles on the roads and the level of per capita alcohol consumption. Reflecting these trends, the legislation on drunken driving has become more concrete and more detailed. Since 1973 it has been illegal to drive a motor vehicle with a blood alcohol level of 0.08% or more. Offenders are liable to fines of up to DM 3000 and loss of their driving licences for several months, provided no accident has occurred. The police have the right to check any driver's blood alcohol level and, if necessary, to take a blood sample. In the absence of an accident, a blood alcohol level of 0.13% leads to the immediate loss of the driver's licence, and a fairly heavy fine or imprisonment. The penalties for a drunken driver involved in an accident are generally higher, though there is some variation in sentencing *(34)*. Drunken driving, then, is regarded as highly dangerous for both motorists and pedestrians. Being drunk in public is not illegal, unless it involves disorderly behaviour or interferes with traffic.

Drunken driving is by far the commonest reason for drivers being deprived of their licences. In 1981, 93% of those who lost their licences had been convicted of this offence. Further details are provided in Table 7, which shows that men greatly outnumber women in the number of licences lost through drunken driving. Many men seem to believe that their driving skills are not impaired by drinking: consequently they do not hesitate to drive after having a few beers with friends *(37)* or colleagues *(38)*.

Because men are more likely than women to get drunk, they are also much more frequently involved in severe accidents resulting in injury or death. In 1984, 10 199 people in the Federal Republic were killed in traffic accidents, 2173 of them the victims of accidents involving people (mainly drivers) who were intoxicated. Some 93% of those drivers were males: sex is by far the most powerful predictor of drunken driving.

Riediger *(39)* has attempted to classify alcohol-related accidents; he states that drunken drivers run a higher risk of being involved in serious accidents resulting in injury or death than in accidents in which only property is harmed. Most drunken-driving accidents occur at weekends and at night, a third of them when the driver is alone. Intoxicated drivers often drive fast but have a reduced ability to drive accurately or safely *(40)*.

Table 7. Losses of driving licences due to convictions for drunken driving, 1977–1981

	Year				
	1977	1978	1979	1980	1981
Total number of licences lost	*148 401*	*153 090*	*149 372*	*152 523*	*150 642*
Number lost through drunken driving	140 140	143 905	139 436	142 038	139 617
Percentage lost by men	96	95	95	95	94
Percentage lost by women	4	5	5	5	6

Source: Schmidt *(35)*, p. 39; Schmidt *(36)*, pp. 33–34.

Several researchers have noted that drivers aged between 18 (the minimum legal age for obtaining a driving licence for a car) and 25 run the highest risk of involvement in alcohol-related accidents. However, there is considerable divergence from this general rule, as shown by the information in Table 8.

Men between the ages of 25 and 35 run the highest risk of causing traffic accidents while intoxicated; as indicated by Table 4, this subgroup also comprises the heaviest drinkers per daily session. It appears that men of this age group are especially inclined to value drinking regardless of its consequences. If they are involved in an accident as the result of a drinking session with friends, they frequently flee from the scene in a final attempt to evade responsibility. Drunken men who cause accidents form the majority of drivers who try to escape from the scene.

Young men on military service and regular soldiers are more likely to be involved in alcohol-related accidents than their civilian counterparts who are not in all-male institutions *(37,42)*. This conclusion is compatible with information suggesting that military personnel are especially likely to be frequent and heavy drinkers. There may not be a simple causal link between the two factors, but they are closely connected.

Drunken drivers who have been apprehended by the police and have lost their licences have a high rate of relapse. A quarter of those convicted for the first time re-offend within five years, and 35% of those with several convictions relapse again within the ensuing two or three years. Several factors distinguish these "chronic" drunken drivers. According to Kunkel *(43)*, Schöch *(44)* and Welzel *(45)* the probability of relapse is high if the driver:

- is male;
- has already been convicted of drunken driving or has been convicted three or more times for minor crimes, either related or unrelated to driving;
- has had a blood alcohol level of 0.18–0.22% or reports being a regular heavy drinker;
- has problems at work;
- takes a lot of risks on a driving simulator;
- rates himself in personality tests as calm, self-controlled and self-confident, despite test results which contradict this;
- is below the age of 35.

Drunken drivers who are convicted differ in some respects from those who drive while drunk but are not convicted. In fact, most drunken drivers are neither involved in accidents nor detected by police checks *(44,46,47)*. Many go on drinking and driving for years. The minority of offenders

Table 8. Drunkenness in accidents attributed to driver error, 1984

	Age group (years)									Total
	15-18	18-21	21-25	25-35	35-45	45-55	55-65	65-75	≥ 75	
Males										
Number of accidents due to driver error	29 700	69 045	60 823	68 668	47 001	38 118	20 457	10 064	4 996	348 872
Number related to alcohol	1 432	6 292	7 102	8 780	5 596	3 757	1 414	340	76	34 789
Percentage related to alcohol	4.8	9.1	11.7	12.8	11.9	9.9	6.9	3.4	1.5	9.9
Females										
Number of accidents due to driver error	4 224	17 611	15 939	20 058	15 017	9 851	5 770	2 859	770	91 553
Number related to alcohol	68	310	448	757	581	254	61	11	2	2 492
Percentage related to alcohol	1.6	1.8	2.9	3.7	3.9	2.6	1.1	0.4	0.3	2.7
Total number of drunken drivers	1 500	6 602	7 550	9 537	6 177	4 011	1 475	351	78	37 281
Percentage of males	96	95	94	92	91	94	96	97	97	93
Percentage of females	4	5	6	8	9	6	4	3	3	7

Source: Statistisches Bundesamt, ed. *(41)*, pp. 111–112.

who *are* detected are a special subgroup of heavy drinkers who have a number of features in common with identified alcohol-dependents *(18)*. These traits include a reckless disregard for the consequences of excessive drinking. Some of these individuals are certainly alcohol-dependent.

The criminal law does little to prevent men below the age of 35 from driving after drinking. A number of attempts have been made to re-educate drunken drivers *(43,48,49)*. These re-education programmes *(50,51)* do not emphasize that drunken driving is primarily an offence committed by men rather than by women. Drinking, and especially heavy drinking, is still not discussed as a special problem of men, who regard it as an affirmation of virility to be expressed as often as possible. Since the ideology surrounding drinking and drunkenness is not tackled in re-education programmes, their ability to produce durable effects is doubtful.

Research Priorities

Epidemiological research into alcohol use and misuse has old roots in Germany *(52–55)*, but the tradition was lost during the Nazi period and has not yet been re-acquired in the Federal Republic *(56)*. As a result, many basic questions related to alcohol use remain unanswered. It is also apparent that international standards of epidemiological methodology have not yet been adopted *(57,58)*. Many studies lack methodological sophistication and produce only a blurred impression of the patterns of alcohol use and misuse. This deficit makes comparison of the results with those produced in other countries difficult, and impedes the exchange of information. A new effort is needed to redevelop the tradition of epidemiological studies on alcohol, in close cooperation with established researchers in, for example, France, North America, Scandinavia and the United Kingdom.

The extent of alcohol-related health problems in the Federal Republic of Germany is seriously underestimated. Researchers should be encouraged to investigate the whole area of alcohol use and the health problems connected with it. Research topics should include the interaction of alcohol with other psychoactive substances such as tobacco and illegal and prescribed drugs. More and better research is the only way to achieve a fuller appreciation of the costs and benefits associated with alcohol.

Researchers should also concentrate on high-risk groups: both prospective and cross-sectional studies are needed, using both quantitative and qualitative methods. Investigators need to advance beyond the disease model of alcoholism *(59)*, which is still widely accepted. More information is needed on what attracts men and women to alcoholic drinks in the first place, the meanings they attach to drinking, and how dependence and other consequences develop. A better model needs to be devised to explain how family members, friends and associates foster or inhibit the development of drinking problems. Research should also explore the relationships between drinking, drunkenness, and violence in the family and at the workplace, with special reference to the experiences of girls and women. An attempt should also be made to identify ways of preventing the more serious consequences of alcohol problems and alcohol dependence.

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THE NETHERLANDS

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Alcohol consumption has increased considerably in the Netherlands since the 1960s, and this rise has been accompanied by a proliferation of alcohol-related problems such as alcohol dependence and cirrhosis of the liver. As alcohol misuse has increased, public concern has focused on specific subgroups of the population who are perceived as being especially vulnerable to alcohol-related problems, including young people and women.

Alcohol Consumption

Per capita alcohol consumption in the Netherlands rose from 2.6 litres of pure alcohol in 1960 to 8.6 litres in 1975. It also rose in many other countries during that period, but the increase noted in the Netherlands seems to have been the greatest *(1)*. Since 1975 there has been a slight decrease, as shown in Table 1.

The consumption pattern would be clearer if information were available about the changing alcohol use among specific subgroups of the population. The data presented in Table 1 are derived from alcohol production figures, not from survey data. Between 1958 and 1985 several national surveys were carried out in the Netherlands. They provide information about the use of alcohol by sections of the population, but it is uncertain to what extent these self-reported survey data may be regarded as valid. As noted above in the section on epidemiology, they appear to be inherently flawed by underreporting of both consumption and alcohol-related problems. Underestimation may occur because respondents forget

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Table 1 Per capita alcohol consumption in the Netherlands, 1960-1984

Year	Litres of pure alcohol
1960	2.6
1965	4.1
1970	5.5
1975	8.6
1980	8.6
1984	8.3

Source De Zwart *(2)*

exactly how much alcohol they have drunk, or because excessive drinkers may be less willing to take part in a survey and may consciously or unconsciously, in whole or in part, deny their use and misuse of alcohol *(3,4)*. Knibbe et al. *(5)* concluded that there has been 51–56% underestimation in several Dutch surveys. Their figure was based on a comparison of survey results with national alcohol production figures.

It is relevant to note that underreporting varies between different subgroups of survey respondents classified in relation to variables such as age, sex and education. For example, a survey of alcohol consumption in Rotterdam indicated that women underestimated their "frequency of drinking six glasses or more" more often than men did *(6)*.

Since 1958 several wide-ranging surveys of alcohol use have been conducted. These studies also suggest that alcohol consumption has recently undergone major changes, but even so there was no marked shift in the proportions of drinkers and abstainers during the period covered by the surveys. Accordingly, the increase in per capita alcohol consumption between 1960 and 1979 cannot be attributed to a reduction in the number of people who do not drink.

Alcohol consumption appears to have increased among all subgroups of society, but to varying degrees. All studies have concluded that young men (aged 21–40) consume more than older men, and that those with a higher level of education drink more than those who are less educated. People without religious affiliations drink more than Protestants, but less than Roman Catholics.

Unfortunately no detailed information is available on consumption trends in relation to variables such as marital status, occupation and unemployment. These variables are probably important. For example, a survey in Rotterdam indicated that the proportion of excessive drinkers was particularly high among the unemployed and the divorced. This re-emphasizes the important point that alcohol use and misuse are often influenced by other factors such as social and economic conditions.

As in other countries there has been a change in the pattern of preferences for various drinks. Since 1960 the relative consumption of wine has increased, while that of spirits has decreased. In 1960 the respective proportions of beer, wine and spirit consumption were 46.6%, 8.8% and 44.6%. By 1984 these proportions had become 49.8%, 21.9% and 28.3% *(2)*. Surveys conducted since 1958 indicate that men drink more beer, gin and other spirits than women, while women especially like wine. There are clear regional variations in choices.

Together with increases in alcohol consumption there has been an "accumulation" of drinking habits and drinking situations. Before 1940 alcohol was drunk mainly in public bars, but since that time drinking at home has become more popular. Since around 1960, drinking has also spread to a number of new cultural and social situations, and even occurs, though not often, at school and at work.

Surveys also indicate that attitudes to alcohol have been changing. The general population are more tolerant of it than they used to be, although standards still vary. In general, men are more flexible in their attitudes than women, and the young are more tolerant than older people.

Alcohol-related Problems

Alcohol-related problems are widespread in the Netherlands and some of them have increased considerably in association with the rise in consumption. The Medical Registration Foundation (Stichting Medische Registratie) regularly publishes information on the number of patients admitted to hospital for alcohol abuse. In certain illnesses and conditions both alcohol and other factors are implicated; Table 2 shows the frequency of hospital admissions for three such conditions.

The data in Table 2 relate only to general hospitals. It is clear, however, that alcohol-related admissions to psychiatric hospitals and other facilities have also increased greatly *(2,7)*.

The situation regarding mortality data since 1960 is complex. De Zwart *(2)* has reviewed trends in mortality from cirrhosis of the liver, alcoholic psychosis and alcoholism as the primary or secondary cause of death between 1960 and 1984. Few people were recorded as having died from alcoholism or alcoholic psychosis. The mortality rate from cirrhosis of the liver has increased slightly. De Lint *(1)* noted that the marked increase in alcohol consumption between 1960 and 1975 did not result in a proportionate rise in deaths from cirrhosis. He suggested, however, that a rise

Table 2. Hospital admissions for alcohol-related diagnoses, 1969/1971 to 1979/1981

Diagnosis	Males		Females	
	1969/1971 rate[a]	1979/1981 rate[a]	1969/1971 rate[a]	1979/1981 rate[a]
Alcoholism	12.6	30.9	2.4	9.4
Alcoholic psychosis	5.0	6.6	0.8	1.7
Cirrhosis of the liver (Laennec form)	6.8	17.5	3.3	8.0

[a] Per 100 000 population.

Source: Hoogendoorn *(11)*.

in alcohol consumption might take several years to produce such an increase. Gips *(8)* has since reported a marked rise in alcohol-related cirrhosis of the liver in the period 1960–1975.

Records are kept of the number of offences committed under Article 26 of the Penal Code, which relates to driving while under the influence of drink. Data are also recorded for accidents associated with alcohol *(2)*. The proportion of traffic accidents involving injury in which at least one person had been consuming alcohol rose from 5.9% in 1965 to 9.2% in 1984. For traffic accidents resulting in fatalities, the corresponding increase was only from 12.4% to 14.5%. The number of convictions for drunken driving rose from 5078 in 1960 to 23 024 in 1983. The number of offences known to the police rose from 5850 in 1960 to 36 567 in 1984. These figures suggest a considerable increase in driving while under the influence of alcohol.

During 1981 surveys were conducted in the City of Rotterdam and in the Province of Limburg, which includes small towns and rural areas. The surveys used identical methods and elicited a wide range of information about psychological and physical dependence on alcohol and associated social problems *(9, 10)*. These were the first Dutch studies to involve such detailed examination, so it is not possible to compare them with earlier work in order to monitor trends. It should be emphasized that these surveys were not national in coverage; even so, they did relate to two very different areas and so, together, have some rather wider relevance.

The studies revealed that alcohol-related problems were relatively common in some sections of the population. For example, about 10% of those aged between 15 and 70 had a moderate or high score on a scale of psychological dependence ("escape drinking", "drinking to forget one's worries"). Some 3.2% of those in Limburg and 3.5% of those in Rotterdam had experienced moderate or high levels of social problems within the previous six months. A composite alcohol-related problems scale was produced by combining the scales for separate problems. A second scale for problem drinking was constructed on the basis of the latter combined with details of alcohol consumption. This assessed the prevalence of problem drinking as 7.1% in Rotterdam and 10.8% for Limburg.

As expected, problem drinking was more likely to involve men than women. A strikingly high rate was evident among the unemployed, especially those aged 25 or over. In Rotterdam 22% of the unemployed were classed as problem drinkers, and in Limburg 25%. Of unemployed men, a third were classed as problem drinkers.

In Rotterdam one third of divorced men were also classed as problem drinkers (N = 40). There were only 13 divorced men in the Limburg sample, of whom 3 were problem drinkers.

There has also been an increase in the numbers of people seeking help for alcohol-related problems during the past decade *(2, 11)*. The majority of people with these problems do not seek help, however. This is partly because many people do not regard alcohol problems as needing specialized assistance and are more likely to seek informal help *(5, 12)*.

The increase in alcohol misuse has not led to a proliferation of epidemiological studies, but there have been some Dutch investigations on medical and pharmacological topics, treatment evaluation and preventive strategies. Other studies have focused on specific subgroups of the population or on specific geographical areas; only a few more extensive national surveys have been carried out since 1958. These include studies by Gadourck *(13)* on data collected in 1958, Jessen *(14)* on data collected in 1970, Sijlbing *(15)* on data collected in 1976, and Adriaanse et al. *(16)*. Very little detailed work encompassing the full range of associated topics has been done on problem drinking. The two surveys in Rotterdam and Limburg, cited above, are unusual in this regard.

High-risk Groups

Although alcohol is used throughout Netherlands society, several subgroups have been identified as running a high risk of having alcohol-related problems, but unfortunately some of them are only poorly documented. For example, it appears that problem drinking is associated with unemployment, but little has been done to investigate the connection. Two high-risk groups about whom more is known are young people and women.

Young people

The public were recently surprised by a press report describing the results of a study of 25 000 schoolchildren. The study revealed that the age at which children began drinking was by Netherlands standards very low. A third of those aged 10 or 11 reported at least occasional drinking, and 1.2% reported drinking more than five glasses of alcohol on each drinking occasion.

In 1984 a national survey of 1300 respondents aged between 15 and 24 revealed that the average age at which they had started drinking was 14 or 15. Some notable individuals even said that they had begun as young as 9 years old *(17)*. The survey also showed that about three quarters of those aged 15–24 sometimes drank, suggesting a slight decrease since the late 1970s. A high proportion of respondents (compared to older people) drank outside their homes, in places such as public bars, youth centres, sports clubs and discothèques. Alcohol consumption appeared to be higher outside the home than in it.

The Rotterdam survey mentioned earlier indicated that 10% of young men aged 16–19 and 2% of young women of the same age were relatively heavy drinkers who often had alcohol-related problems *(6)*. Young drinkers appeared more likely than older people to have social problems, but less likely to have alcohol-related health problems.

There is widespread support in the Netherlands for measures designed to prevent youthful alcohol misuse. For example, about 60% of the population in Rotterdam and Limburg were in favour of raising the minimum legal age for purchasing alcohol; roughly 19% were neutral and 21% were opposed *(18)*. Predictably, young people are rather less enthusiastic about the prospect of such restrictions. Their reservations are to some extent justified, since it is difficult to prevent people old enough to join the armed forces or to marry from consuming alcohol.

A number of preventive activities have been undertaken, notably alcohol education programmes in schools. It should be emphasized that the drinking patterns of the young are often influenced by those of their parents and other adults.

Women

It is in some ways ironic and inappropriate for women in the Netherlands to have also been identified as being vulnerable to alcohol, since men are far more likely than women to drink heavily and to have alcohol-related problems. However, since alcohol use and misuse by women is a subject that attracts widespread international attention, it will also be discussed here *(19–21)*.

Knibbe et al. *(5)* reviewed survey data collected during 1958, 1970 and 1981 *(13, 14, 16)*. These studies showed that between 1958 and 1981 the average amount of alcohol consumed each week by women rose from about 1.7 to 4.3 glasses. The corresponding rise for men was much greater, so that the difference in average weekly alcohol consumption between the sexes grew from 1.7 to 6.4 glasses between 1958 and 1970, although since 1970 it has not changed.

Between 1958 and 1970 alcohol consumption increased among men and women of all ages, and of all educational and religious subgroups. More recently the differences between male and female consumption levels have decreased in some sections of the population, notably among the young, the better educated and those without religious affiliation *(5)*.

The Rotterdam survey showed that men were more likely than women to have experienced health and social problems, frequent intoxication and symptoms of alcohol dependence. Only in relation to moderate or high scores for dependence was the difference between the sexes relatively small (8% for women and 11% for men) *(6)*.

A 1983 study of alcohol-dependent women indicated that they had fewer social problems than alcohol-dependent men because women tried to conceal their drinking *(22)*. A notable feature among these alcohol-dependent women was the combined use of alcohol and tranquillizers.

Men's and women's attitudes to alcohol seem to have been changing. In 1958, 16% of survey respondents stated that it was acceptable for women to consume more than six glasses of alcohol at a party; by 1976, this figure had risen to over 22%. The corresponding figures for the acceptability of men drinking that amount were 23% in 1958 and 30% in 1976 *(13,15)*.

Currently, a high proportion of alcohol advertising on television is directed at women. There is little doubt that women have greater freedom than before in relation to drinking. Men still drink much more but an increasing number of women are joining them.

Conclusions and Prospects

To recapitulate, there was a big increase in alcohol consumption between 1960 and 1975, but since then the level has stayed relatively stable. The range of drinking habits and drinking situations has expanded and people have become more tolerant of alcohol. There has been an increase in problems such as alcohol-related mortality and morbidity and drunken driving.

All sections of the population have increased their consumption, but to varying degrees. Young people often begin to drink at an early age, and some have problems (mainly social) that are attributable largely to periodic intoxication rather than chronic heavy drinking. Alcohol use and misuse have increased among women, but remain much lower than among men.

What may be expected in future? First of all, government policy plays a major role in alcohol use and misuse. Although some legislation does exist — on public drunkenness and drunken driving, for example — the Netherlands may fairly be regarded as having relatively few alcohol control measures at present *(18,23)*. Yet some changes may be on the way. In October 1985 the Parliamentary Under-Secretary of Health released a report on alcohol policies that proposed a small number of control measures *(24)*. The approach could have been more radical; nevertheless it is a first step towards a more restrictive policy, and possibly to a reduction in per capita alcohol consumption.

What about future research? As already noted, very little information is available on some high-risk groups. Little work has been done on alcohol use and misuse among the unemployed and the divorced, and it would probably be worthwhile to look further into poly-drug use and its associated problems. The clustering of potentially harmful habits (such as drinking, smoking, taking pills, and malnutrition) and the identification of high-risk groups in this respect also warrant additional investigation. These are only a few of a considerable range of worthwhile research topics.

Finally, it is appropriate to raise the issues of feasibility, methods and priorities. The report from the Parliamentary Under-Secretary of Health included a very broad review of research objectives. This did not elaborate on the methods by which the objectives might be achieved, and it is likely that research will inevitably be limited. Therefore priorities must be established and a timetable is needed for specific initiatives. A similar methodical approach will be required in relation to the choice of research agencies and the control of standards of research.

At present alcohol research in the Netherlands, as in some other countries, is not coordinated and does not conform to a large-scale plan. What is needed is not so much a list of research topics as discussion and coordination of resources and priorities, leading to the creation of a national research programme.

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SPAIN

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Because of its position on the Mediterranean, Spain has known alcohol — first wine and later distilled spirits — for many centuries. A Spaniard, Ramon Llull (1235–1315), was in fact the first person to describe the distillation process. Today, Spain has one of the largest areas of cultivated vineyards, and the drinks trade is an important sector of the economy *(1)*. Both alcohol consumption and alcohol-related problems have been rising since the 1950s *(2,3)*. Recently, some authors have suggested that alcohol misuse is exacting an enormous toll of such problems, including mortality, absenteeism and industrial accidents *(4,5)*.

Alcohol-related Problems in the General Population

The upsurge of misuse in Spain has been monitored mainly by using three sets of data: hospital admissions for alcohol dependence, mortality rates from cirrhosis of the liver, and community surveys indicating the extent of heavy drinking.

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Alonso-Fernandez *(2)* and Santo-Domingo *(3)* have described rising rates of alcohol-dependence diagnoses since 1950, mainly in psychiatric hospitals. Goti *(6)* has shown that as alcohol consumption increased between 1953 and 1963, the level of mortality from cirrhosis of the liver increased accordingly. Gili et al. *(7)* noted increases in rates of cirrhosis of the liver for both sexes, and especially for those in the 35–64 years age group. During the period 1951–1977 the overall rate of alcohol-related mortality in Spain was 35.3 per 100 000 population. Cirrhosis was the fourth commonest cause of death after cardiovascular diseases, cancers and accidents.

Community surveys have pointed to certain population groups who are heavy drinkers, and have also revealed regional variations in alcohol consumption. Table 1 summarizes some of the findings of several surveys conducted since 1966. As in other countries, heavy drinking rates were markedly higher for men than for women. The highest proportion of heavy drinkers was in the 15–40 years age group. The heaviest consumption occurred at weekends, and was particularly apparent in young people of either sex. ICSA-Gallup *(8)* concluded that there were no major differences in consumption between rural and urban areas. They also found evidence to support the view that there is a south–north increase in the prevalence of heavy drinking, as previously indicated by Alonso-Fernandez *(2)* and Santo-Domingo *(3)*. Nevertheless, as Fig. 1 shows, standardized mortality rates for cirrhosis of the liver are not consistent with such a pattern, which seems to be oversimple and based on incomplete evidence. It should be noted that in the areas shaded with horizontal lines cirrhosis rates did not differ significantly from the average of 100.

The studies cited give a useful general picture of the pattern of alcohol-related problems in Spain, but they may have been subject to bias. For example, deaths from cirrhosis of the liver are not wholly attributable to heavy drinking; also, the rates may have been influenced by the diagnostic procedures used to certify deaths. Hospital admissions for alcohol dependence do point to some of the problems caused by alcohol misuse, but they also reflect the provision of services and hospital policies towards problem drinkers. Many of the apparent variations in levels of misuse indicated by population surveys are attributable to differences in criteria; Querejeta et al. *(9)*, for example, have noted that different definitions result in different rates of alcohol-related problems. Another factor influencing survey results is variation in sampling methods. Antó et al. *(10)* produced a probability sample based on census data. Querejeta et al. *(9)* and ICSA-Gallup *(8)* used random samples. Santo-Domingo et al. *(11)* estimated the extent of problem drinking by using key informants (inpatients in surgery and medical wards) who gave details of their relatives' alcohol consumption. Only ICSA-Gallup *(8)* have produced details of heavy drinking in different areas based on a standard methodology; however, this study was limited by the small sample size, which inhibited the analysis of subsets of data.

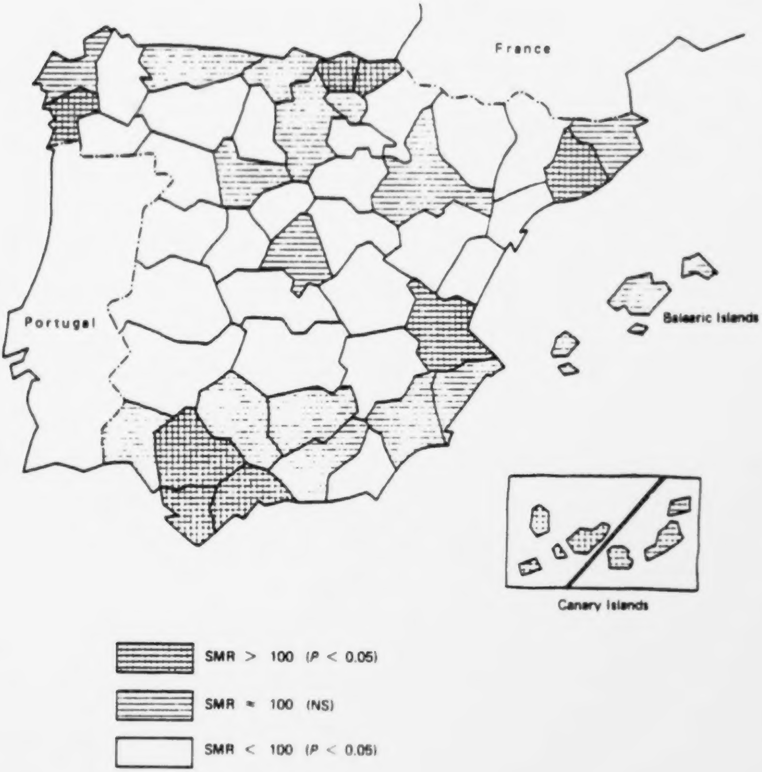
Table 1. Heavy drinkers in community surveys

Survey	Sample size	Age of respondents (years)	Location	Case criteria[a]	Percentage of heavy drinkers		
					Males	Females	Total
Santo-Domingo (1966)	418	19+	Madrid	Daily consumption > 100 ml, or drunkenness	18.6	1.4	10.0
Alonso-Fernandez (1966)	961	19+	La Coruna	Daily consumption > 100 ml, or drunkenness	21.9	7.0	15.1
Valenciano (1966)	2148	19+	Murcia	Daily consumption > 100 ml, or drunkenness	9.3	0.9	5.2
Querejeta et al. (1983)[b]	2405	15+	Basque Country	Daily consumption > 100 ml	22.0	2.0	11.9
				Daily consumption > 100 ml, with positive answers to key questions (tolerance, dependence)	4.7	0.4	2.6
ICSA-Gallup (1984)	1500	18+	Spain	Weekly consumption ≥ 700 ml	7.6	0.4	3.9
Antó et al. (1984)	1845	15+	Barcelona	Daily consumption ≥ 80 ml	6.2	—	2.8

[a] Expressed as alcohol consumption and/or another variable.

[b] Provisional data

Fig. 1. Cirrhosis of the liver: rates among Spanish men (1975-1977)


France
Portugal
Balearic Islands
Canary Islands
SMR > 100 (P < 0.05)
SMR ≈ 100 (NS)
SMR < 100 (P < 0.05)

Note. SMR = standard mortality rate
NS = not significant

Alcohol-related Problems in Specific High-risk Groups

Industrial workers

One of the classic epidemiological studies of alcohol problems showed that heavy drinking was a major problem in industrial workers *(12)*. It was associated with a greater frequency and seriousness of accidents and illness, and with increased absenteeism *(13)*. Estevez *(12)* reviewed data related to industrial accidents and sick leave among alcohol-dependent and other workers between 1960 and 1971 (the former were diagnosed by occupational health services). The study showed that alcohol-dependent workers had a relative risk of accidents 2.5 times greater than that of their colleagues. They also averaged 19 more days of absenteeism per year. The significance of these findings is amplified when it is borne in mind that most alcohol problems at the workplace go undetected by occupational health services *(14)*.

Women

The level of hospital discharges for alcohol-dependent women indicates that female problem drinking has been increasing during recent decades *(2)*. Most of the cross-sectional studies referred to in Table 1 showed that the heaviest drinking women are in the youngest age groups; similar conclusions have been drawn for France (pp. 45–63). The rise in weekend drinking has involved both sexes, but women more than men. Unfortunately there is not yet enough evidence to explain the increase in heavy drinking among women.

Table 2 shows the male/female ratios for selected indicators of alcohol-related problems in the Basque Country. The ratios decrease as the seriousness of the problem in health terms increases. Alcohol-dependent women stayed in hospital longer than men, which is in accordance with the fact that specific quantities of alcohol have rather different effects on the two sexes. It is also possible, however, that alcohol problems carry a greater stigma for Spanish women than for Spanish men; this may delay the recognition of such problems and affect the prognosis *(17)*.

Schoolchildren

Alcohol consumption by schoolchildren aged 5–14 has been examined by Rodriquez-Martos in Barcelona *(18)*, Calafat et al. in Mallorca *(19)* and Basadre et al. in Galicia *(20)*. These studies are particularly informative concerning the ways in which people are initiated into drinking. The evidence available shows that they usually begin with wine (except in Galicia where they start with cider) and that they usually take their first

Table 2. Male/female ratios for selected indicators of alcohol-related problems

Indicator	Male/female ratio
Heavy drinking[a]	11.0:1
Hospital discharges for alcohol dependence[b]	4.4:1
Mortality from cirrhosis of the liver[c]	2.8:1
Average number of days' hospitalization for alcohol dependence[b]	0.5:1

[a] Querejeta et al *(9)*

[b] Instituto Nacional de Estadística *(15)*

[c] Instituto Nacional de Estadística *(16)*

drink at home. As many as 95% of the schoolchildren investigated in Barcelona (N = 12 856), 97% of those in Mallorca (N = 3690) and 75% of those in Galicia (N = 480) had already drunk alcohol. Boys drank more often than girls, and for both sexes consumption increased with age.

The studies also showed that consumption was higher among children whose relatives were regular drinkers. In most cases the first experience of drunkenness occurred in the family home and was regarded with amusement, not disapproval. Drinking habits apparently develop in a family setting and at an early age.

Adolescents

The surveys referred to in Table 1 showed that drinking was especially common among adolescents and young adults. If these groups were to persist in drinking heavily later in life, there would be a marked and alarming rise in alcohol-related health problems.

Few Spanish studies have concentrated on young people's drinking habits, however. Colectivo Bixer *(21)* examined a probability sample of 1216 young people aged between 13 and 20, which showed that wine was not the predominant form of alcoholic drink in this group: they had not copied the traditional pattern of adult drinking, but preferred beer, mixed drinks and liqueurs, and were particularly likely to drink them at weekends. Boys were four times as likely as girls to report having consumed over 300 cl of alcohol per week. Heavy drinking was especially likely to occur at weekends and to involve rather older young people. Consumption was significantly influenced by increased leisure time.

Some Research Priorities

The future of research into alcohol use and misuse is related to the progress of public health policies. Policy-making, both at national and autonomous community level, depends on basic information concerning the levels of alcohol-related problems in the general population, and will require the continued use of surveys. Future studies will need to provide details of consumption and alcohol-related problems in specific subgroups of the population; information of this type will serve as basic background material for both prevention policies and services. Future research and social policy should also focus on the special problems of high-risk groups, such as those already described.

The issue of widespread alcohol problems among industrial workers has been highlighted by the pressures of the worldwide recession and by the availability of occupational health services, but at present industrial health is not regarded as the most pressing issue because of increased unemployment. Alcohol misuse is recognized as a potential reason for dismissal; on the other hand workers with alcohol problems may ask for help from occupational health services and the National Institute of Hygiene and Work Security — there is ample evidence to warrant the provision of such assistance. Industry-based programmes could attempt to detect problem drinkers and encourage early intervention and support. Also, both managers and employees could be alerted to the importance of the problem and to the need to adopt constructive policies to help those affected. Researchers could usefully evaluate the effectiveness, costs and benefits of alternative support strategies to help the problem drinker at the workplace *(22)*.

It is apparent that drinking generally begins among children at home. Health promotion activities should relate to the family and the school, should have clear, realistic aims, and should whenever possible be evaluated by objective criteria.

A number of factors suggest that there may be an increase in alcohol-related problems in future: they include heavy consumption, the adoption of "new" styles of drinking by the young, increased leisure time, and the pressures of unemployment. Women could be a special focus of future research: they are less likely than men to be heavy drinkers, but those women who do drink heavily are to be found in the youngest age groups.

Future research should attempt to monitor the patterns of alcohol use and misuse, attitudes to drinking and its consequences, and factors that encourage or prevent misuse. It should also give greater emphasis to the evaluation of various control strategies.

The recently created health centres are one of the resources now available with which to respond to alcohol misuse. Reflecting the philosophy of community-based health care provision, they are responsible for identifying health problems and providing health education. A control policy could attempt to postpone the age at which people start to drink and to modify drinking patterns, as part of a wider programme of leisure education and change in lifestyles.

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UNION OF SOVIET SOCIALIST REPUBLICS

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The levels of alcohol consumption and alcohol-related problems in the Soviet Union are lower than in many western industrial countries. Per capita consumption, which doubled in the 15 years between 1970 and 1985 *(1)*, is likely to be reduced in the near future, since current government plans include the reduction of production levels (beginning with vodka and fortified wines) and the introduction of heavy restrictions on retailing. A number of social organizations are also making concerted efforts to reduce consumption, prompted by acceptance of the fact that alcohol misuse is incompatible with personal adjustment and wellbeing in an advanced socialist society.

The effectiveness of the extensive campaign to combat misuse is demonstrated by the fact that per capita consumption, which rose from 3.9 litres in 1960 to 8.7 litres in 1980, had been reduced to 4.3 litres in 1986. The mass media and other means of communication are used for information purposes; child care services and the educational system also stress the dangers of drinking too much, beginning during the child's earliest years. The health services, including the specialized alcohol and drug-dependence clinics established in 1975, play a major role in both prevention and assistance to people with problems.

Epidemiological studies present major difficulties in a country as immense as the USSR, with its diversity of climatic and geographical conditions, its highly uneven population density, its mixtures of races, and the varying economic and industrial characteristics of each region. Nevertheless, a series of studies have been undertaken concentrating on specific

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subgroups of the population or representative samples in districts, regions and republics. Several surveys have sought to monitor patterns and trends in alcohol use and misuse over large areas of the country.

Soviet clinicians and researchers do not disagree markedly about the definition of alcohol dependence. There is widespread acceptance of a three-tiered development of dependence, with a set of symptoms associated with each stage *(2)*. Despite some practical difficulties, much attention has been paid to the measurement and definition of alcohol misuse.

Soviet services for alcohol- and drug-related problems are reinforced by after-care and follow-up. All those identified as alcohol-dependent are registered with their local alcohol- and drug-dependence clinic. They have access to comprehensive treatment and rehabilitation until they appear to have overcome their problems and are removed from the register. Afterwards they continue to be given regular check-ups.

This system makes it possible to calculate how many people throughout the country have been identified as alcohol-dependent and are receiving treatment or rehabilitation, as well as how many are identified as being alcohol-dependent during a given period. Of course, it is always possible to find problem drinkers in the community who have not been identified and recorded by official agencies, and alcohol problems are therefore more widespread than agency statistics indicate. It has been suggested that the real level of alcohol dependence may be one third higher than the agency records show *(3)*.

As the provision of services for problem drinkers has improved, several real advances have been achieved. For example, the average length of time between the development of various alcohol problems and the moment when the patient starts to receive medical care has declined. People who started to have alcohol problems between 1961 and 1965 were identified and registered on average 10.2 years after the emergence of their problems. Among those identified and registered between 1976 and 1980, however, the time-lapse had dropped dramatically to an average of only 3.9 years *(4)*.

The greatest disparity in numbers between agency records and actual levels of alcohol problems in the community occurs in relation to people whose problems are as yet relatively minor. Early problem drinkers probably constitute about 40% of those seen by agencies, but in some areas only 2–3% of them are actually registered as having an alcohol problem *(5)*. Better methods of identifying drinking problems in the community should increase the proportion of people with less severe problems recorded by official agencies.

The statistical reports from republic and union clinics indicate a steady improvement in the provision of services for problem drinkers. For example, 15% of all newly identified alcohol dependents in 1976 were judged to have severe problems, whereas by 1980 the proportion had declined to

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only 3.3%. All 15 republics registered a decrease in the proportion of these severely dependent patients. At the same time 11 republics reported that detection of early problem drinkers was improving and that this group accounted for about 15% of those recorded nationally by alcohol-problem clinics *(4)*.

A method has been suggested whereby the number of problem drinkers in the community may be assessed from the number of persons identified clinically as suffering from alcoholic psychosis *(6)*. Since alcoholic psychosis typically develops after a long period of excessive drinking, it is deduced that the clinical prevalence of this condition might indicate the number of problem drinkers in the second and third stages of alcohol dependence. Zaicev *(7)* has concluded that nearly half of those in the second and third stages were not registered with alcohol-dependence clinics in 1977. A study of inpatients with alcoholic psychosis who had been hospitalized for the first time revealed that only 53.5% of them had previously been identified as problem drinkers *(8)*. The variable numbers of patients with alcoholic psychosis recorded in large areas of the USSR gives a useful indication of variations and trends in alcohol misuse. In comparison to 1971 and 1976, evidence from all the republics of the USSR in 1981 indicated that the proportion of identified alcohol dependents who were suffering from alcoholic psychosis had declined substantially. This may be attributable to better service provision in the form of earlier detection of alcohol problems, increased effectiveness of treatment, and increased success with related problems. The annual rate of hospital readmissions for alcoholic psychosis has also declined *(9)*.

Regional Variations

Several authors have compared alcohol-related illnesses in different areas of the USSR, using clinical records and data from general population samples, some of which have indicated substantial regional differences. For example, between 1976 and 1977 the number of identified alcohol dependents in Russia and Tadzhikistan rose by 13.6% and 24.1% respectively. In contrast, the corresponding figure for Estonia declined by 3.8% *(10)*.

The rate of registered alcohol-related morbidity in the Tadzhik SSR was only a third of the national average, while the rate in the Estonian SSR was close to the average *(11)*. During the past decade the proportion of individuals with alcoholic psychosis among identified problem drinkers has declined in all the republics. It is particularly low in the Tadzhik SSR and high in the Estonian SSR *(9)*.

While the separate republics vary considerably in their rates of recorded alcohol problems, all have recently experienced encouraging shifts in both the levels and the characteristics of these problems and in the severity of identified problem drinking. These changes have not altered the relative positions of each republic. In 1980 the highest rates of alcohol-related morbidity (in the Latvian SSR) were seven times greater than those in the lowest (the Armenian SSR) *(4)*.

Some important differences have been noted between high- and low-risk regions. A study in one of the Baltic republics and one of the Asian republics showed wide variations in the proportion of adults who were abstainers (13.3% and 58.0% respectively). In contrast, there was hardly any difference in the incidence of chronic alcohol dependence (6.0% and 5.1% respectively). This investigation highlighted the importance of national and local values, traditions and customs, which serve to control alcohol misuse and to support alcohol control policies *(12)*.

There were evident differences in characteristics of identified alcohol dependents between the two areas. In Asian republics the patients had had alcohol problems for longer periods; chronic heavy drinking combined with increased tolerance to alcohol was the norm. Severe dependence was markedly more common among patients in the Asian republics than among those in the Baltic republics (14% and 3.3% respectively) *(13)*.

Levels of dependence and misuse in both territories (Asian and Baltic) were closely related to several factors. As in other countries, high-risk individuals were especially likely to be men, to be migrants into the region, not to have completed secondary education, to lack stable and varied leisure interests, to be unskilled, to have poor work records, to have started to drink at an early age, to work in occupations with traditions of heavy drinking, and to have families who were permissive of alcohol consumption *(14)*.

In general terms there are also differences in the registered prevalences of alcohol dependence between urban and rural areas in the USSR. In 1968 the ratio of urban to rural dwellers who were alcohol-dependent was 2.6 : 1, although by 1976 it had declined to 1.9 : 1. In some republics the discrepancies are smaller. In 1976 in the Russian Soviet Federal Socialist Republic, the Estonian SSR and the Armenian SSR the ratio was 1.6 : 1, and in the Ukranian SSR only 1.3 : 1. On the other hand there were much greater differences between urban and rural dwellers in the Azerbaijan, Uzbek, Tadzhik and Turkmenian SSRs, ranging from 6 : 1 to 40 : 1. In urban areas the highest registered prevalence, in the Latvian SSR, was 8.5 times greater than the lowest, in the Armenian SSR. In rural areas the highest level was 127 times greater than the lowest *(15)*.

Higher levels of recorded alcohol dependence may be attributable partly to variations in the local provision of services for problem drinkers. For example, in the Lithuanian SSR the urban to rural alcohol dependence ratio was 1.7 : 1 in 1981, but Dembinskas *(16)* concluded that better identification of alcoholic psychosis in both urban and rural areas reduced the difference to 1.3 : 1.

The Etiology and Correlates of Alcohol Problems

The factors which influence the incidence of alcohol dependence vary enormously from region to region. They have been investigated by surveys both of the general population and of groups with alcohol-related problems. A great deal of evidence points to the importance of factors such as the age of onset of alcohol dependence, education, marital status, job skills and the type of employment. A study of the families of 236 industrial workers showed that misuse was especially common among people with lower levels of education and those who did hard physical work. Divorced men misused alcohol 1.5 times more than their married counterparts and 4 times more than single men. Misuse was evident in 43.8% of families where there was frequent conflict between spouses. Also, 89% of misusers reported that their alcohol problems were directly due to the influence of their friends. Material or living conditions, on the other hand, did not seem to exert an influence on either misuse or dependence *(17)*.

A survey of two districts with a combined population of 500 000 showed that 53.5% of identified alcohol dependents worked in industry. Some 18.6% worked in sales and service occupations and 11.2% in transport and communications. Most patients (63.8%) had had only primary or incomplete secondary education, and only 8.6% had had higher education *(3)*.

A second urban survey of problem drinking showed that 59.2% of men were manual workers and 29.4% non-manual. The corresponding figures for women were 20.3% and 68.0%. Among men, alcohol problems seemed to be more common in construction workers than in community and service workers. Among women, they were most common in the sales and catering professions *(18)*.

People with only a minimum of education are significantly overrepresented among those with alcohol problems. Alcohol-related morbidity rates for men with incomplete secondary education were 8.9 times higher than for those with higher education, and 3.6 times higher than for those with secondary technical education *(19)*.

Another study showed that, of a group of male alcohol-dependent inpatients, 92.8% had a job, 4.6% received a pension or other government benefits, and 2.6% were dependent on someone else. The corresponding figures for women were 82.1%, 5.9% and 12.0%. People engaged in hard physical work made up 70.4% of those who had a job. There was a clear link between occupation and the degree of severity of alcohol dependence. Out of 100 men, 17.9% of those showing early alcohol dependence did intellectual work. Only 7.3% and 8.0% respectively had intermediate or severe dependence. Those with early symptoms of dependence did not seem to have had their occupational skills impaired, but many of those whose dependence was more severe had impaired work capacity *(20)*.

In most cases the development of these patients' alcohol problems could be traced back to the ages of 20–24 (25% of all inpatients), 25–29 (23.1%) or 30–34 (19.7%) *(21)*.

A review of alcohol-dependence admissions in an urban area with a population of six million showed that severe alcohol dependence was most likely to be found among older patients. Severe dependence was noted in 14.4% of those aged 21–25, in 20.6% of those aged 31–35 and in 34.0% of those aged 46–50 *(22)*.

A study of alcohol problems in workers over 25 in a large industrial organization showed that the main factors in the development of these problems were pressures and relationships in adolescent peer groups. The alcohol orientation of the peer group, wrong ideas about what adult working life is all about, and indifference to work in general, all seemed to encourage the early misuse of alcohol *(23)*.

Research into women's alcohol problems is especially difficult. Most alcohol-dependent women only seek help from alcohol-dependence clinics once their problems have become severe. The detection of early alcohol dependence among women is rare, and such cases account for only 10% of those who come to the attention of clinics. A sample survey of 236 mildly alcohol-dependent women in a rural area showed that two thirds of them were aged 20–39. Some 14% were identified as psychopathic, 21.8% had psychopathic traits, 19.1% had organic disorders of the central nervous system resulting from some form of trauma, and 51.4% had cardiovascular diseases. Some 46% were employed in service industries, 12.1% in retail occupations, 15.6% in catering, 18.0% in community service, 19.5% in industry and construction, 5.9% in transport and communications, 5.1% in education and 9.4% in the health service *(24)*.

As already noted, social and cultural values and traditions in specific population groups may be an important influence in curbing alcohol misuse. A survey in an industrial organization in the Tadzhik SSR identified 9.2% of workers as having a serious alcohol problem. A third of the workforce were from the area. Only 4.4% of identified problem drinkers came from this group: the remaining 95.6% were migrants. No problem drinkers were identified among the mainly indigenous local rural population *(25)*.

Other correlates were identified by a comparison of the development of alcohol problems among migrants and the indigenous population in the extreme north of the USSR. This study was of 924 identified alcohol dependents. The period of regular uncontrolled drinking among indigenous people was much lower (2.7 years) than among migrants (6.4 years). Indigenous problem drinkers had moved from early to intermediate dependence quicker than migrants, on average in 2.8 years compared to 4.0 years, and tended to be younger, their average age being 20.9 years compared to 28.6 years for migrants *(26)*.

Similar patterns have been noted in one of the most easterly regions of the USSR, where migration rates have been high. One group of alcohol-dependent patients studied consisted of 284 indigenous people and 634 migrants. The severity and duration of dependence were lower among the former than among the latter. Moreover, a connection was revealed between alcohol problems and the type of work done. Patients who were "expeditionists" (workers developing an area) were more likely to have a wide range of symptoms of alcohol dependence, and at an earlier age, than other workers. Despite this the expeditionists managed to continue to do their jobs adequately for prolonged periods; the other workers were far more likely to have impaired work performance associated with their alcohol problems *(27)*.

Alcoholic Psychosis

Alcoholic psychosis presents major clinical problems. Until recently its epidemiology was poorly known, because of lack of agreement as to how to classify it *(28)*. There is now, however, an impressive array of clinical and epidemiological information which has helped to solve many difficult and controversial problems.

One of the earliest studies in this field was a review of all hospitalized cases of alcoholic psychosis in two districts of Yaroslavl. Identified problem drinkers, 97.5% of whom were men, were monitored between 1946 and 1970. Approximately half of those aged 30–39 had alcoholic psychosis, as did 15% of those under 30. The use of psychotropic drugs for therapy since 1960 has been associated with an increase in symptoms such as acute verbal hallucinosis, and acute and prolonged paranoid reactions. At the same time there have been fewer paranoid symptoms involving delusions and jealousy *(29)*.

Studies of the dynamics of early psychotic symptoms among alcohol dependents have shown that when alcoholic psychosis recurs the associated level of delirium tremens declines from 45.5% in the first episode to 14.3% in the third. Thereafter delerium tremens is not observed. Acute verbal hallucinosis is common from the second psychotic episode onwards *(30)*.

A study of alcohol dependents in the Astrakhan region showed that 9.6% had had alcoholic psychosis. The male to female ratio was 8.2 : 1. The majority (65.9%) of those who had had alcoholic psychosis had also had delerium tremens. In addition, 27.6% had had acute hallucinosis and 2.7% acute paranoid symptoms. Recurrent psychosis (2–14 episodes) was observed among 22.9% of inpatients. The length of time from the onset of the abstinence syndrome (withdrawal symptoms) to the onset of psychosis ranged from 1 year to over 20 years. In most areas alcoholic psychosis developed 6–8 years after the onset of withdrawal symptoms, mainly at age 31–40. When dependence had developed at a younger age, the period between the beginning of withdrawal symptoms and psychosis was found to be only 1–3 years *(31)*.

A high level (70%) of delerium tremens was noted in association with alcoholic psychosis among alcohol-dependent inpatients in the regional psychiatric hospital at Donetsk in 1976. This contrasted with the situation in 1962, when the figure was only 23%. Conversely, the incidence of malignant conditions such as Korsakoff's psychosis, Wernicke's encephalopathy and alcoholic pseudoparalysis had fallen during the same period *(32)*.

An increase in the level of delerium tremens in association with alcoholic psychosis was noted among alcohol-dependent inpatients living in the Ivanov region. The delirium to hallucinosis ratio was 2.6 : 1 in 1978 and 3.4 : 1 in 1980. The prevalence of delerium tremens appeared to be far lower in rural residents of the same region, at only 1.7 : 1, and it remained unchanged from 1978 to 1980 *(33)*.

An analysis of all 1170 cases of alcoholic psychosis in the Omsk region over the previous 15 years showed that the male to female alcoholic hallucinosis ratio had declined from 19.3 : 1 to 7.4 : 1. The ratio for alcoholic delirium had also fallen, from 9.7 : 1 to 8.2 : 1. The early onset of chronic alcohol problems was associated with a prevalence of psychosis, but for later onset the association was not so clear *(34)*.

Alcohol Misuse and Ill Health

A representative sample survey of a rural area containing 40 000 people with severe alcohol problems revealed that male alcohol misusers had an ill-health rate 1.2 times higher than the general male population. Alcohol-dependent men registered at clinics had 1.5 times as much ill health as men in general. This difference was particularly marked among men below the age of 40 *(35)*.

Researchers monitored physical illness among a sample of alcohol dependents over a period of five years between 1976 and 1980, also in a rural area. This study showed that the high general morbidity among alcohol dependents was related not only to the aggravation of chronic and neurological illnesses but also to symptoms of alcohol withdrawal, which prompted frequent visits to a doctor and caused repeated short periods of inability to work *(36)*.

Alcohol misuse is widely acknowledged to be a major cause of high mortality rates among certain groups of workers, particularly men. This subject has been given special attention by epidemiologists over the past decade. For example, a review of the causes of death of 488 male problem drinkers in an urban area revealed that 47.6% had died in accidents, a third of which were ascribed to acute intoxication and half of which were traffic accidents. Cardiovascular diseases were the second most common cause of death (28.7%), followed by cancers (7.4%), diseases of the digestive tract (5.7%) and diseases of the respiratory system (4.9%). It is notable that of 28 deaths related to diseases of the digestive tract, 24 involved cirrhosis of the liver. Some 60% of the men in this study group died during their most productive years, below the age of 50 *(18)*.

A similar pattern of mortality resulted from a 10-year review of 1528 alcohol dependents registered with clinics in the Pskov region. Again, the largest single cause of death was accidents (47.4%), followed by disorders of the circulatory system (27.1%), malignant tumours (9.1%), disorders of the digestive tract (5.9%) and disorders of the respiratory system (5.9%) *(37)*.

General information about registered alcohol dependents showed that the average ages of men and women who died were 48.1 and 49.8 years respectively *(38)*.

The average age at death of people who died at various stages of dependence also varied. For men with mild, intermediate and severe levels of dependence, the average ages at death were 44.5, 46.4 and 51.4 years respectively. For women, the corresponding ages were 47.0, 48.7 and 56.1 years respectively *(39)*.

An analysis of 255 deaths involving alcoholic psychosis between 1950 and 1980 revealed marked seasonal fluctuations. The fewest deaths (4.5%) occurred in November and December, while 11.5% occurred in April. Mortality in summer (34%) was apparently twice as high as in winter (17.0%). Most of these deaths were of people aged 31–40 (34.7%) and 41–50 (33.8%) *(40)*.

Conclusions

Epidemiological studies in the USSR have revealed the general extent and pattern of alcohol-related problems both in the country as a whole and within its regions. The patterns have been taken into account in the improvement of services for problem drinkers.

Health professionals in the USSR now face a new task, stemming from the recent government decision to curb all forms of alcohol misuse and encourage sobriety in the population. Epidemiological studies of the patterns of alcohol consumption and misuse, the classification of these patterns, and the identification of factors which encourage or discourage the use of alcohol will all play a major role. Epidemiologists will also be expected to provide results and other materials as a basis for recommendations on alcohol education, which will support those who wish to live their lives without alcohol problems.

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CONCLUSION

As the preceding chapters indicate, there are important variations between patterns of alcohol use and misuse in different countries. Alcohol is popular and widely used throughout much of Europe. As a result it is often used excessively or inappropriately, frequently with tragic consequences. The term epidemiology encompasses a wide range of activities and issues. Perhaps the main purpose of epidemiological studies of the use and misuse of alcohol is to provide an indication of the scale and nature of alcohol-related problems. Another closely associated aim is the identification of factors which encourage alcohol misuse and the design and evaluation of policies to control it. It must be emphasized that alcohol use and misuse cannot be considered in isolation: both are influenced by a host of other factors.

Epidemiology is a rather esoteric and forbidding word. In fact epidemiological studies have a very practical purpose in eliciting basic factual information and in providing "hard evidence" which may serve to guide public policy in relation to alcohol.

National traditions of alcohol epidemiology vary markedly, as do national (or regional) drinking habits. Nevertheless, as has been shown, alcohol misuse is widely acknowledged to be extensive and to inflict a huge toll of morbidity and mortality, as well as being linked with a daunting collection of social and economic problems.

An obvious, but nonetheless crucial, conclusion to be drawn from available evidence is that there is a clear relationship between the general level or trend in alcohol use and the level or trend in alcohol-related problems. If alcohol consumption rises so, very probably, will alcohol misuse. Accordingly, alcohol problems are most widespread in communities in which alcohol plays the greatest role, is most popular and is, in some ways, the hardest to control. Responses to alcohol misuse involve political decisions and are subject to many influences apart from that of health care.

It is vital that policy-makers should have available to them as much accurate information as possible. In the case of alcohol, this information needs to be obtained both nationally and internationally. No country can afford to be insular with respect to alcohol policies or research findings. Alcohol misuse is an international problem and there are definite advantages for all in exchanging information and comparing experience.

In many countries, even though alcohol misuse is widespread, only tiny sums of money are spent on alcohol research. Nevertheless it is clear, as re-emphasized by the preceding chapters, that a number of very basic and important roles may usefully be performed by epidemiologists, such as the periodic monitoring of trends and the evaluation of a wide range of policy options. The latter include therapeutic approaches, legal responses, and educational and fiscal policies. Very often research is conducted on a short-term and uncoordinated basis. Very few countries have a clear national plan for alcohol research, or relate it to other key problem issues such as illegal drug use, migration or unemployment. The country reviews in this book indicate that, although drinking styles are diverse, there are many similarities in the types of problem (intoxication, accidents, alcohol dependence, mortality from cirrhosis of the liver) which are now commonplace throughout much of Europe. In addition, public and political concern often focuses on the same groups of people, for example women, adolescents and drunken drivers.

Alcohol problems are now firmly established and widespread. Researchers and policy-makers are urged to communicate with each other and to consider whether or not research is able to perform the basic functions of epidemiology which have been outlined above. In particular, future activity should serve practical policy objectives, both long- and short-term. Some countries, notably Finland, have well established teams of alcohol researchers engaged in a coordinated and wide-ranging programme of research. Most countries do not have such teams, and their epidemiological studies lack both financial support and political encouragement. Both of these are necessary if alcohol misuse is to receive a more effective response in future than it has in the past.

Martin Plant

Alcohol consumption has risen dramatically in many countries since the Second World War. In association with this rise there has been a proliferation of alcohol-related problems, including mortality from liver cirrhosis, alcohol dependence, alcohol-related crime, and a host of other adverse consequences such as accidents and family strife.

This volume is the result of cooperation between the WHO Regional Office for Europe and researchers from seven European countries. Its purpose is to discuss a number of practical issues related to the conduct of alcohol research, to indicate certain recent trends in alcohol use and misuse, and to highlight problems and priorities for research and policy.

Alcohol misuse is now firmly established as a huge international problem. It is hoped that this review will help emphasize the value of epidemiological studies, as a means both of monitoring the scale and pattern of such misuse and of identifying the most fruitful ways of responding to it.

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